# GEOLOGICAL SURVEY OF CANADA ALFRED R. C. SELWYN, C.M.G., LL.D., F.R.S., Director

# CATALOGUE

OF

# SECTION ONE OF THE MUSEUM

OF THE

# GEOLOGICAL SURVEY

EMBRACING

# THE SYSTEMATIC COLLECTION OF MINERALS

AND THE .

COLLECTIONS OF ECONOMIC MINERALS AND ROCKS
AND SPECIMENS ILLUSTRATIVE OF
STRUCTURAL GEOLOGY

BY

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1896

OTTAWA

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To Alfred R. C. Selwyn, C.M.G., LL.D., F.R.S.,

Deputy Head and Director Geological Survey Department.

SIR,

In compliance with your wishes I have prepared, and beg herewith to lay before you, the accompanying catalogue of the collections contained in the Mineralogical and Lithological Section of the Museum attached to this Survey. Mr. Ralph L. Broadbent, Museum Assistant in this Section, has rendered valuable aid in the preparation of this Catalogue by preparing lists of the contents of the several cases and assisting in the correction of proofs—a work which he has carried out with an energy, perseverance and good-will which demand our warmest acknowledgments.

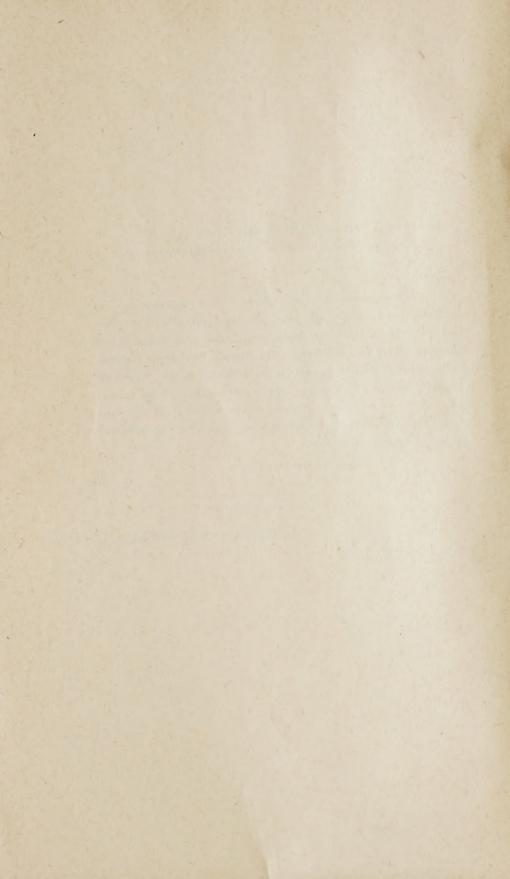
I have the honour to be,

Sir,

Your obedient servant,

G. CHRISTIAN HOFFMANN.

Оттаwa, April 20, 1893.



# TABLE OF CONTENTS.

	Page.
Folding Plan of room showing relative position of the main collections and of the various cases in which they are arranged—facing page	1
Introductory remarks	1
A.—Systematic Collection of Minerals.	
I. Native Elements	5, 30
II. Sulphides, Arsenides, Tellurides	6
a. Sulphides	6, 30
b. Arsenides	8
c. Arsenosulphides	8
d. Tellurides	8
e. Oxysulphides	8
III. SULPHO-SALTS.—SULPH-ANTIMONITES, SULPH-ARSENITES	9
a. Sulph-antimonites	9
b. Sulph-arsenites	9
IV. Haloids.—Fluorides	9
V. Oxides	9, 30
a. Oxides of silicon	9, 30
b. Oxides of the metals	11, 30
VI. OXYGEN SALTS	13
1. Carbonates	13, 30
2. Silicates,—titanates	15
A. Anhydrous silicates	
a. Disilicates, polysilicates	
b. Metasilicates	16
c. Orthosilicates	. 17
d Subsilicates	20

# TABLE OF CONTENTS-Continued.

Oxygen salts—Continued.		age
B. Hydrous silicates	20,	
a. Zeolite division		20
b. Mica division		22
c. Serpentine and talc division		24
d. Kaolin division		25
e. Concluding division	6	25
O. LIUMIO DIIICOCOSTITUTO	26,	
3. Niobates, tantalates	0.0	26
4. Phosphates, nitrates	26,	
5. Borates, uranates	27	27
6. Sulphates	27,	
7. Tungstates	28,	33
VII. SALTS OF ORGANIC ACIDS (unrepresented).		29
VIII. Hydrocarbon compounds		
SUPPLEMENTAL SERIES OF MINERALS TO SYSTEMATIC COLLECTION.		30
B.—Collection of Economic Minerals and		
Rocks.		
I. METALS AND THEIR ORES.		
Antimony ores		54
Specimens illustrating the distribution of ores of		
antimony		57
Bismuth ore		55
Cobalt ore		55
Copper ores:		
Native copper		83
Specimens illustrating the distribution of native		86
copper		84
Bornite or purple copper ore		88
Specimens illustrating the distribution of bornite.  Chalcocite or vitreous copper ore		83
Specimens illustrating the distribution of chalcocite		87
Chalcopyrite or copper pyrites		85
Specimens illustrating the distribution of chalco-		06
pyrite		89
Tetrahedrite or grey copper		89

# TABLE OF CONTENTS—Continued.

METALS AND THEIR ORES—Continued.	Page
Gold ores:	-
Gold-bearing quartz	37
Gold-bearing rocks, other than quartz, also auriferous	38
arsenopyrite and stibnite	
Placer gold	39
Gold and silver ores:	
Gold and silver ores from the province of British Columbia.	
1. East Kootanie district	41
a. McMurdo mining area	42
2. West Kootanie district	42
a. Toad Mountain mining camp	42
b. Hot Springs or Harrison mining camp	43
c. Hendryx mining camp	44
d. Illecillewaet mines	44
e. Kaslo-Slocan mines	45
f. Big Bend region	46
g. From other claims in the West Kootanie	
district,	46
3. Southern interior	46
a. Stump Lake or Nicola mines	46
From other claims in the southern interior.	47
4. Cariboo and northern interior	47
Iron ores:	
Bog-iron ore	66
Specimens illustrating the distribution of bog-iron	
ore	75
Clay iron-stone	67
Specimens illustrating the distribution of clay	
iron-stone	76
Hematite and varieties of the same	64
Specimens illustrating the distribution of hema-	
tite	72
Mineral associations of hematite	82
Ilmenite or titanic iron	64
Specimens illustrating the distribution of ilmenite.	78
Iron sands	64
Limonite or brown hematite	65
Specimens illustrating the distribution of limonite.	75
Mineral associations of limonite.	83

# TABLE OF CONTENTS—Continued.

METALS AND THEIR ORES—Continued.	Page
Iron ores—Continued.	
Magnetite or magnetic iron ore	62
Specimens illustrating the distribution of magne-	
tite	67
Mineral associations of magnetite	
Siderite or spathic iron	67
Specimens illustrating the distribution of siderite.	76
Lead ores	50
Specimens illustrating the distribution of lead	
ores	52
Manganese ores, oxides of manganese	62
Specimens illustrating the distribution of ores of manganese	61
Mercury ores	55
Nickel ores	54
Specimens illustrating the distribution of ores of	0.1
nickel	58
Platinum	56
Silver ores (see also under gold and silver ores—above).	
Silver ores from the Thunder Bay mining region,	
Lake Superior, Ontario	48
Silver ores from the provinces of British Columbia	-
and Quebec	50
- Silver-lead and lead ores	50
Specimens illustrating the distribution of silver-	52
lead and lead ores	55
Zinc ore	59
	99
II. MINERALS APPLICABLE TO CERTAIN CHEMICAL MANUFACTURES.	
Apatite (phosphate of lime)	150
Specimens illustrating the distribution of apatite.	153
Mineral associations of apatite	155
Arsenopyrite (sulph-arsenide of iron)	56
Specimens illustrating the distribution of arsenical	50
pyrites	57
Celestite (sulphate of strontia)	134
Chromic iron ore (chromate of iron)	56
Specimens illustrating the distribution of chromic	
iron	60

# TABLE OF CONTENTS-Continued.

Minerals applicable to certain chemical manufactures—Continued.	Dago
	Page 56
Iron pyrites (bisulphide of iron)  Specimens illustrating the distribution of iron	90
specimens infustrating the distribution of from pyrites	61
Magnesite (carbonate of magnesia)	134
Manganese ores (oxides of manganese)	62
Specimens illustrating the distribution of ores of	02
manganese	61
Molybdenite (sulphide of molybdenum)	56
Specimens illustrating the distribution of molyb-	
denite	60
Scheelite (tungstate of lime)	28, 33
III. MINERALS USED IN THE PRODUCTION OF LIGHT AND HEAT.	
Coal series:	
Peat	93
Lignite	93
Lignitic coal	98
Coal,—of Cretaceous and Laramie age	99
Coal,—of the Carboniferous system	103
Anthracitic coal	102
Semi-anthracite	102
Anthracite	102
Bitumen series:	
Petroleum	105
Oil shale, etc	105
Mineral tar	105
Bituminous shale and sand-rock	105
Albertite	104
IV. MINERALS (AND MATERIAL MANUFACTURED FROM CERTAIN	
OF THE SAME) APPLICABLE TO COMMON AND	
DECORATIVE CONSTRUCTION.'*	
Building stones:	
Limestones	107
Dolomites	110
Sandstones	111
Granites	112
Gneisses	113
Syenites	113
Marbles, limestone and serpentine11	
Labradorite rock	113

# TABLE OF CONTENTS-Continued.

MINERALS APPLICABLE TO COMMON AND DECORATIVE CONSTRUCTION—Continued.	Page
Building stones—Continued.	
Trap rock	113
Archean and Paleozoic rocks	120
Brick-clays, bricks and drain tiles	122
Gypsum, anhydrite and plaster-of-Paris	129
Raw cement stones and hydraulic limes	128
Raw limestones and common limes	127
Roofing slates and slate flooring tiles	106
V. MINERALS EMPLOYED AS PIGMENTS.	
Barite or barytes	133
Iron ochres, and other ferruginous minerals, and pig-	
ments prepared therefrom	131
Steatite	134
VI. REFRACTORY (FIRE RESISTING) MINERALS.	
Asbestus (the variety of serpentine commercially so-	A.
called)	138
Specimens illustrating the distribution of chryso-	1.10
tile or so-called asbestus	140
Articles made of asbestus	139
Fire-clay, kaolin, etc	134
Graphite, vein and disseminated	136
Specimens illustrating the distribution of graphite.	137
Mineral associations of graphite	135
Articles manufactured from graphite	199
Micas:	141
Biotite or magnesium-iron mica	141
Muscovite or potassium mica  Phlogopite or magnesium mica	141
	139
Potstone or compact chlorite	139
	139
Soapstone or steatite	199
VII. Brines, salt, and mineral waters.	
Brines and salt	142
Mineral waters	143
VIII. MINERALS APPLICABLE TO THE FINE ARTS AND JEWELLERY.	
Miscellaneous ornamental minerals and rocks.,	145
Lithographic stone	148

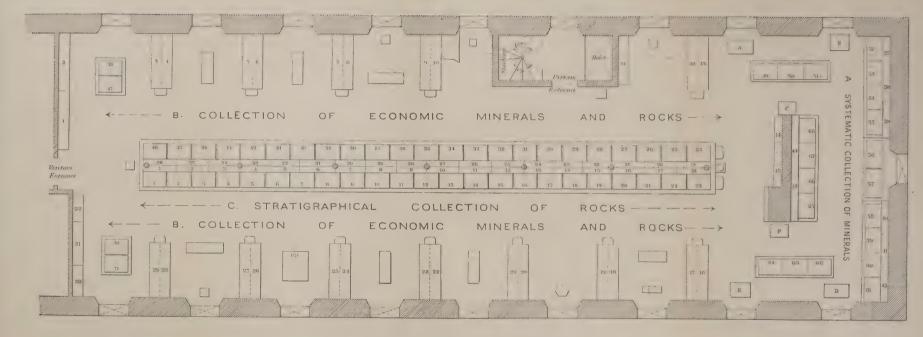
# TABLE OF CONTENTS—Continued.

IX. MINERALS EMPLOYED, WITH OR WITHOUT PREVIOUS PRE- PARATION, AS FERTILIZERS.	Page
Apatite	150
Specimens illustrating the distribution of apatite.	153
Mineral associations of apatite	155
(‡ypsum	152
Marls	152
Phosphatic rock	152
X. MINERALS EMPLOYED FOR GRINDING AND POLISHING.	
Infusorial earth or earthy tripolite	161
Marl, arenaceous and calcareous	162
Sandstones and mica-slates, and articles manufactured	160
therefrom	162
	102
XI. MINERALS OF MISCELLANEOUS APPLICATION.	7.00
Felspar, suitable for the manufacture of porcelain	139 162
Moulding sand.	102
Quartz, quartz sand, and sandstone, suitable for glass- making	162
Soap clay, employed as a detergent	162
Polished columns and pedestals of limestone and serpentine	
MARBLES AND OF OTHER ORNAMENTAL STONES.	163
Large fragments, etc., of miscellaneous minerals and rocks.	164
MISCELLANEOUS MINERALS AND ROCKS	164
C.—Stratigraphical Collection of Rocks	166
D.—Specimens illustrating Structural and Phenomenal Geology	167
INDEX TO, AND SYNOPSIS OF CONTENTS OF, CASES	175
INDEX TO NUMBERS ON SPECIMENS	178
Index to mining districts, areas, camps, locations and claims,	
ALSO TO MINES, QUARRIES AND PITS	190
Index to subjects	202

#### ERRATA.

Page 7, line 9 from the bottom, instead of "1299" read "1297."

- 25, line 17 from the bottom, for "Rensellaerite" read "Rensselaerite."
- 40, line 26 from the top, instead of "446" read "466."
- 41, line 17 from the top, instead of "3637" read "5637."
- 54, line 13 from the bottom, instead of "647" read "697."
- 131, line 12 from the bottom, instead of "2440" read "2444."
- 136, upper side note should read "Upright table-case 29" omitting the word "continued."
- -- 136, line 5 from the top, for "pumbago" read "plumbago."
- 150, last line, instead of "978" read "975."
- 178, column 11, omission, after "242," read "243 page 85."



## PLAN OF FIRST FLOOR OF GEOLOGICAL MUSEUM

Section 1.

MINERALS AND ROCKS.

Scale of feet.



# CATALOGUE

OF

# SECTION ONE OF THE MUSEUM

OF THE

# GEOLOGICAL SURVEY OF CANADA

Embracing the Systematic Collection of Minerals and the Collections of Economic Minerals and Rocks and Specimens Illustrative of Structural Geology

BV

#### G. CHRISTIAN HOFFMANN, F. INST. CHEM., F.R.S.C.,

Assistant Director, Chemist and Mineralogist to the Survey, and Curator of the Mineralogical and Lithological Section of the Museum.

# Introductory Remarks.

All the specimens shown in these collections are, without exception, from Canadian localities—hence the same may be justly regarded as fully illustrating the mineral resources of the Dominion, so far as these are known at present.

The minerals are arranged under two distinct headings—A., the Systematic Collection of Minerals, and B., the Collection of Economic Minerals. In the former, which illustrates the scientific classification of minerals, the specimens are arranged in accordance with the system followed in the sixth edition (1892) of Dana's "System of Mineralogy," whilst in the latter the classification is wholly technical, each mineral being arranged under a heading connected with some one of its more prominent applications. A synopsis of these classifications immediately precedes the collections to which they respectively refer.

In the Collection of Economic Minerals, the series of specimens of the various ores from some of the best known and most important deposits, is supplemented by another series illustrating the distribution of the mineral. This latter series when sufficiently extensive, as in the case of the iron ores, is arranged—primarily, in accordance with the scientific classification and secondarily and subordinately, geographically, the specimens from the various provinces being placed upon different coloured grounds as specified under heading "Specimens illustrating the distribution of iron ores." There is also, in connection with the exhibits of apatite, graphite and the principal ores of iron, a suite of specimens showing the mineral associations of the same.

Owing to the limited space available for the display of the above mentioned collections, the disposition of the material, more especially in the case of the economic minerals, in a fairly satisfactory manner, has been beset by difficulties which could not, unfortunately, in all instances be overcome —as a result, related series of specimens are not always shown in such close juxtaposition as could be wished. The inconvenience caused by this is partly met by giving, as a side note, the designation and number of the case or cases in which each series of exhibits is shown, so that by referring to the accompanying diagram which shows the relative position of the various cases and location of the main collections—it will be easy to find the exact position of the case or cases sought for, in the room. The numbers on the specimens correspond with those on their accompanying labels. These are in most instances very full, more especially in the collection of economic minerals, where they give the scientific and common name of the mineral, the locality whence it was obtained, geological formation (in most instances), name of the collector or donor and, in general, the date of collection.

Specimens having a higher number than 6549, are additions since the completion of this catalogue.

To facilitate reference from various points of view four indexes are appended. The first of these is an index to, and synopsis of the contents of, the various cases: the second, an index to the numbers on the specimens: the third, an index to mining districts, areas, camps, locations and claims, also to mines, quarries and pits: the fourth a very full index of subjects.

# A.--SYSTEMATIC COLLECTION OF MINERALS.

This collection, which is located at the further end of the room. is shown in flat table-cases 49-68, and supplemental specimens, in connection with the same, in upright table-cases 37-44, and separate tablecases A, B, C, D, E and F.

The following is a synopsis of the system of classification employed. It is identical with that adopted in Dana's System of Mineralogy. sixth edition, 1892.

## I.—NATIVE ELEMENTS.

# II. -SULPHIDES. ARSENIDES. TELLURIDES (SELENIDES. ANTIMONIDES.1

- a. Sulphides.
- b. Arsenides.
- c. Arsenosulphides. d. Tellurides.
- e. Oxysulphides.

# III. SULPHO-SALTS, SULPH-ANTIMONITES, SULPH-ARSEN-ITES [SULPHO-BISMUTHITES.]

- a. Sulph-antimonites.
- b. Sulph-arsenites.

# IV. -HALOIDS.-[CHLORIDES, BROMIDES, IODIDES], FLUOR-IDES.

#### V.-OXIDES.

- a. Oxides of silicon.
- b. Oxides of the metals.

## VI.—OXYGEN SALTS.

- 1. Carbonates.
- 2. SILICATES,—TITANATES.
  - A. Anhydrous silicates.
    - a. Disilicates, polysilicates.
    - b. Metasilicates.
    - c. Orthosilicates.
    - d. Subsilicates.
  - B. Hydrous silicates.
    - a. Zeolite division.
    - b. Mica division.
    - c. Serpentine and talc division.
    - d. Kaolin division.
    - e. Concluding division.

#### VI.—OXYGEN SALTS-Continued.

C. Titano-silicates, [titanates].

- 3. NIOBATES, TANTALATES.
- 4. Phosphates [arsenates, vanadates, antimonates],
- 5. Borates, uranates.
- 6. Sulphates, [Chromates, Tellurates].
- 7. Tungstates, [molybdates].

# VII. - [SALTS OF ORGANIC ACIDS: OXALATES, MELLATES, Etc.] VIII.—HYDROCARBON COMPOUNDS.

Note.—The combinations enclosed in brackets are, at present, unrepresented in the collection. The labels indicating the main divisions are printed on greytoned paper; those showing the subdivisions on white.

#### I.—NATIVE ELEMENTS.

- Graphite.—Lot 3, range II. of Grenville, Argenteuil county, Q.—Coll., R. Bell, Table-case 1856. (1228.)
  - columnar.—Lot 28, range V. of Buckingham, Ottawa county, Q.—
     Coll., H. G. Vennor, 1877. (1249.)
  - Walker's property, Buckingham, Ottawa county, Q.—Coll., C. W. Willimott, 1889. (2048.)
  - High Falls, Bowman, Ottawa county, Q.—Coll., E. D. Ingall, 1891.
  - Lochaber, Ottawa county, Q. (1254.)
- Native Sulphur (resulting from the decomposition of pyrite.)—Lot 3, range I. of Denbigh, Addington county, O. (1238.)
- Native Arsenic.—Seven miles up Watson Creek, west side of the Fraser River, twenty-five miles above Lytton, B.C. (3421.)
- Native Antimony.—Lot 28, range I. of South Ham, Wolfe county, Q.—Coll., J. Richardson, 1875. (1248.)
  - with kermesite.—Lot 28, range I. of South Ham, Wolfe county, Q.—
     Coll., C. W. Willimott, 1882. (1247.)
- Native Gold. -Leary lead, Tangier, Halifax county, N.S.—Coll., A. R. C. Selwyn, 1870. (1230.)
  - in dolomite.—Lot 15, range XIV. of Leeds, Megantic county, Q. (1231.)
  - Chaudière River, Beauce county, Q. (1235.)
  - Bonanza claim, Cayoosh Creek, near Lillooet, B.C.—Presented by F. Sones, 1891. (5390.)
  - in hematite.—Clinton, B. C.—Presented by T. Elwyn, 1886. (5399.)
  - nugget.—Nelson's claim, Upper Cherry Creek, Okanagan, B.C.— Presented by J. Fraser Torrance. (1233.)
  - model of a nugget.—Mosquito Creek, Cariboo, B.C. (1232.)
    - do do Keithly Creek, Cariboo, B.C. (1236.)
- Native Silver.—Silver Islet, Lake Superior, district of Thunder Bay, O. (1237.)
  - Rabbit Mountain mine, township of Paipoonge, district of Thunder Bay, O.—Presented by T. A. Keefer, 1884. (4960.)
    - Silver Mountain mine, township of Lybster, district of Thunder Bay, O.—Presented by T. H. Trethewy, 1889. (5723.)
    - model of a nugget.—Omenica, B.C. (1264.)
  - Wellington mine, two miles north-east of Bear Lake, Kaslo-Slocan Road, West Kootanie, B.C.—Coll., E. D. Ingall, 1892. (1251.)
- Native Copper.—Half a mile east of Horseshoe Cove, near Cape d'Or, Cumberland county, N.S.—Coll., Scott Barlow, 1876. (1244.)
  - North shore of Minas Basin, Cumberland county, N.S.—Presented by Mr. Fairbanks, 1881. (1273.)
  - Two Islands, Cumberland county, N.S.—Coll., S. Barlow, 1876. (1245.)
  - Michipicoten Island, Lake Superior, O.—Coll., W. E. Logan, 1846.
     (1242.)
  - -- St. Ignace Island, Lake Superior, O.—Coll., W. E. Logan, 1846. (1243.)

# I.—NATIVE ELEMENTS—Continued.

Table-case 40 Continued.

Native Copper.—Fraser River, about thirty miles above Fort George, B.C.— Presented by H. Glassy, 1875. (1240.)

Fraser River, nine miles below Spence's Bridge, B. C.—Coll., J. Richardson, 1875. (1246.)

Vital Creek, Omenica district, B.C.—Presented by H. G. Hanks. (3443.

Native Mercury.—Eastern entrance to Seshart Channel, Barclay Sound, Vancouver Island, B.C. (5990.)

Arquerite,—Vital Creek, Omenica district, B.C.—Presented by H. G. Hanks, (3442.)

model of a nugget.—Vital Creek, Omenica district, B.C. (1211.)

Native Platinum.—Similkameen River, B.C.—Coll., G. M. Dawson, 1877. (1234.)

Granite Creek, Tulameen River, B.C.—Presented by T. Elwyn.

North Saskatchewan River, neighbourhood of Edmonton, district of Alberta, N. W.T. (5611.)

Native Iron. - North shore -fifth concession, back of Campement d'Ours-of St. Joseph Island, Lake Huron, O. (5605.)

# II.-SULPHIDES, ARSENIDES, TELLURIDES, [SELENIDES, ANTIMONIDES.1

#### A .- Sulphides.

Stibnite.—Parish of Prince William, York county, N.B.—Coll., L. W. Bailey, 1881. (1252.)

crystals.—Parish of Prince William, York county, N.B.—Coll., W. Broad, 1880. (1256.)

Lot 28, range I. of South Ham, Wolfe county, Q. (1257.)

Near Foster's Bar, about twenty-three miles above Lytton, Fraser . River, B.C.—Coll., G. M. Dawson, 1888. (5993.)

Bismuthinite,—Lot 34, range III. of Tudor, Hastings county, O.—Coll., H. G.

Venuor. (1259.)
Little Shuswap Lake, north side, a mile and three-quarters from head of lake, B.C.—Coll., G. M. Dawson, 1879. (1258.)

Molybdenite. -- Lot 2, range III. of Aldfield, Pontiac county, Q. -- Presented by R. H. G. Chapman, 1884. (5114.)

Harvey Hill mine, lot 17, range XV. of Leeds, Megantic county, Q. (1261.)

Lot 22, range II. of Ross, Renfrew county, O.-Coll., C. W. Willimott, 1882. (1262.)

Argentite.—Lot 3, range XIII. of Ascot, Sherbrooke county, Q. (1268.)

with native silver.—Silver Islet, Lake Superior, O. (1271.)

Beaver mine, township of O'Connor, district of Thunder Bay, O.— Presented by T. A. Keefer, 1887. (5467.)

Silver Mountain mine, township of Lybster, district of Thunder Bay, O.—Presented by T. H. Trethewy, 1889. (6502.)

Table-case

39 T mine, near Rabbit Mountain, township of Paipoonge, district of Thunder Bay, O.—Presented by T. A. Keefer, 1886. (6503.)

with native gold.—Found in sluice boxes, thirteen miles above Granite Creek, Tulameen River, B.C.—Coll., G. M. Dawson, 1888. (5392.)

#### A .- Sulphides-Continued.

Galenite. - South side of Little Whale River, Hudson Bay. - Coll., R. Bell. 1877. (1394.)with sphalerite.—Lot 10, range IV. of Calumet, Pontiac county, Q.—

Table-case 50. Continued.

- Presented by W. H. Murphy, 1887. (5458.)
- Victoria mine, Garden River, near Sault Ste. Marie, district of Algoma, O.—Coll., R. Bell, 1875. (1272.)
- Silver Islet, Lake Superior, O.—Presented by R. Trethewy, 1886. (5115.)
- with sphalerite and dolomite. Shuniah mine, township of McIntyre, district of Thunder Bay, O.—Coll., A. R. C. Selwyn, 1872. (1274.)
- Chalcocite.—Grand Manan Island, Charlotte county, N. B. -Coll., L. W. Bailey.
  - Lot 15, range XIV. of Leeds, Megantic county, Q. (1288.)
  - Harvey Hill mine, lot 17, range XV, of Leeds, Megantic county, O. (1291.)
  - Bruce Mines, Lake Huron, district of Algoma, O. (1289.)
- Sphalerite.—Albion Mines, Pictou county, N.S.—Presented by H. S. Poole, 1891. (6505.)
  - Niagara Falls, Welland county, O.—Coll., R. Bell, 1859. (1281.)
  - Lot I, range VII. of Marlow, Beauce county, Q.—Coll., W. F. Ferrier, 1891. (1241.)
  - Kaministiquia River, district of Thunder Bay, O.—Coll., A. Murray, 1846. (1284.)
  - North side (about seven miles inland) of Burrard Inlet, opposite
- Vancouver, B.C. (6506.)

  Metacinnabarite (and cinnabar).—Timothy claim, west side of Read Island, north-east coast of Vancouver Island, B.C. (5608.)
- Cinnabar.—Ebenezer mine, Hector (Kicking Horse) Pass, two and a half miles east of Golden, Rocky Mountains, B.C.—Coll., R. G. McConnell, 1886. (5333.)
  - "Rosebush" claim, near the mouth of Copper Creek, Kamloops Lake, B.C.—Coll., E. D. Ingall, 1892. (1632.)
  - North side of Homathee River, B.C.—Presented by G. Webb, 1876. (1295.)
  - Eastern entrance to Seshart Channel, Barclay Sound, Vancouver Island, B.C.—Presented by J. F. Claxton, 1891. (5991.)
- Millerite. Lot 6, range XII. of Orford, Sherbrooke county, Q. Coll., C. W. Willimott, 1882, (1293.)
- Niccolite. -- 3 A mine, township of McGregor, district of Thunder Bay, O .-- Presented by Judge Van Norman, 1875. (6517.)
  - with gersdorffite.—Lot 12, range III. of Denison, district of Algoma, O.—Coll., A. E. Barlow, 1892. (3478.)
- Pyrrhotite.—Three miles north of St. Stephen, Charlotte county, N. B. (6527.) Lot 19, rauge II. of Elizabethtown, Leeds county, O.—Coll., B. J. Harrington, 1874. (1296, 1299.)
- Polydymite.—Vermilion mine, lot 5 (and 6) range IV. of Denison, district of Algoma, O,—Presented by F. L. Sperry, 1891. (5618.)
- Bornite.—Harvey Hill mine, lot 17, range XV. of Leeds, Megantic county, Q.—Coll., C. W. Willimott, 1882. (1278.)
  - Bruce Mines, Lake Huron, district of Algoma, O.—Coll., A. Murray 1860. (1279.)
- Chalcopyrite.—Polson's Lake, Antigonish county, N. S.—Coll., A. R. C. Selwyn, 1876. (1309.)

## A.—Sulphides—Continued.

Table-case 50.—
Continued.

Chalcopyrite.—Lot 28, range IV. of Ham, Wolf county, Q.—Coll., J. Richardson. (1310.)

Echo Lake, district of Algoma, O. (1311.)

with bornite.—Bruce Mines, Lake Huron, district of Algoma, O.—
 Coll., A. Murray, 1860. (6513.)

Pyrite.—From Head of Eckstall Inlet, south of Port Essington, Skeena River, B.C. (5107.)

 Lot 19, range II. of Elizabethtown, Leeds county, O.—Coll., B. J. Harrington, 1874. (1300, 1305.)

West of Swan Creek, Cumberland county, N. S.—Coll., C. W. Willimott, 1888. (5658.)

Lot 3, range XIII. of Ascot, Sherbrooke county, Q.—Coll., C. W.
 Willimott, 1882. (1299.)

 Lot 18, range II. of Wakefield, Ottawa county, Q.—Presented by J. Robertson, 1882. (5473.)

Lot 12, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1883. (1277.)

Table-case 51.

- St. Foy road, Quebec, Quebec county, Q. (1303.)

 Devils Lake, Bedford, Frontenac county, O.—Coll., H. G. Vennor. (1304.)

- Flint Island, Hudson Bay.—Coll., R. Bell, 1877. (6507.)

— Cape Chatte, Gaspé county, Q. (1306.)

One mile west of Grand Michin, Rimouski county, Q.—Coll., T. C.
 Weston, 1878. (4531.)

nodular concretion.—From the Cretaceous shales, Peace River,
 N. W. T.—Presented by W. Pyke, 1892. (5614.)

Marcasite.—Loc. ? (1307.)

# B.-Arsenides.

Smaltite.—McKim, district of Nipissing, O. (5472.)

Sperrylite.—Vermilion mine, lot 6, range IV. of Denison, district of Algoma, O.—Presented by F. L. Sperry, 1890. (1846.)

## C .- Arseno-sulphides.

Gersdorffite with chalcopyrite.—Lot 12, range III. of Denison, district of Algoma, O.—Coll., A. E. Barlow, 1892. (2586.)

with niccolite and chalcopyrite.—Lot 12, range III. of Denison, district of Algoma, O.—Coll., A. E. Barlow, 1892. (5642.)

Arsenopyrite.—Gatling mine, lot 9, range VIII. of Marmora, Hastings county, O.—Coll., C. W. Willimott, 1888. (1312.)

— Marmora, Hastings county, O.—Coll., H. G. Vennor, 1870. (6512.)

- Caledonia Gold Field, Queen's county, N. S.—Coll., A. R. C. Selwyn, 1891. (3740.)

Danaite.—North half of lot 6, range III. of Graham, District of Algoma, O.—
10. L. McLean, 1891. (5621.)

#### D.-Tellurides.

Sylvanite with argentite and chalcopyrite.—Huronian gold mine, lot H 1, township of Moss, district of Thunder Bay, O.—Coll., A. R. C. Selwyn, 1883. (1353.)

# E.—Oxysulphides.

Kermesite.—Lot 28, range I. of South Ham, Wolfe county, Q.—Coll., C. W. Willimott, 1882. (4514.)

# III.—SULPHO-SALTS.— SULPH-ANTIMONITES. SULPH-ARSEN-ITES. [SULPHO-BISMUTHITES.]

#### A .- Sulph-antimonites.

Table-case

- Jamesonite.—Vermont Creek, Middle Fork of the Spilimichene River, B.C.—
  Presented by W. A. Jowett, 1891. (6518.)

   "Syenite Bluff" claim, Deception Creek, Middle Fork of the Spilimichene River, East Kootanie, B.C.—Coll., G. M. Dawson, 1889. (6523.)
- Bournonite.—East half of lot 22, range III. of Darling, Lanark county, O. (3484.)
- Tetrahedrite.—From near Foster's Bar, about twenty-three miles above Lytton, Fraser River, B.C. (4621.)
  - Lot 3, range IX. of Ascot, Sherbrooke county, Q.—Presented by B. J. Harrington, 1884. (1315.)
- Meneghinite. Marble Lake, Barrie, Frontenac county, O. Presented by B. J. Harrington, 1884, (4909.)

#### B .- Sulph-arsenites.

- Tennantite.—Lot 2, range IX. of Ascot, Sherbrooke county, Q.—Presented by B. J. Harrington, 1884. (4910.)
  - Lot 9, range IX. of Barrie, Frontenac county, O, (5586.)

# IV.- HALOIDS. - [CHLORIDES, BROMIDES, IODIDES], FLUOR-IDES.

#### Fluorides.

- Fluorite.—Lot 15, range I. of Templeton, Ottawa county, Q.--Presented by Joseph Brulé, 1889. (1959.)
  - Lot 7, range X. of Hull, Ottawa county, Q.—Coll., B. J. Harrington, 1878. (1323.)
  - Lot 31, range I. of Villeneuve, Ottawa county, Q.—Coll., C. W. Willimott, 1891. (1318.)
  - Lot 5, range I. of Ross, Renfrew county, O.—Coll., C. W. Willimott, 1891. (370.)
  - with dolomite.—Barton, near Hamilton, Wentworth county, O.— Presented by Col. Grant. (1319.)
  - McKenzie's River, district of Thunder Bay, O.—Coll., R. Bell, 1875.
  - Fluor Island, Lake Superior, district of Thunder Bay, O.-Coll., W. E. Logan, 1846. (1320, 1321.)

#### V.—OXIDES.

#### A .- Oxides of Silicon.

Quartz.—Lot 31, range I. of Villeneuve, Ottawa county, Q.—Coll., C. W. Willimott, 1887. (5490.)

## A .- Oxides of Silicon-Continued.

Table-case Quartz.—Lot 12, range XII. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878. (1381.)

Continued.

amethystine.—Thunder Bay, Lake Superior, O. (1382, 5495.)
Digby Neck, Digby county, N.S.—Coll., H. How, 1868. (1379.)

with calcite.—Below Grand Valley River, Gaspé county, Q.—Coll.,
T. C. Weston, 1878. (1374.)

Harvey Hill, lot 17, range XV. of Leeds, Megantic county, Q. (1376.)

Lot 31, range I. of Portland, Ottawa county, Q.—Presented by J. G. Miller. (4516.)

Garthby, Wolfe county, Q.—Coll., C. W. Willimott, 1882. (4517.)
 McLeod's location, Lake. Superior, O.—Coll., W. E. Logan, 1846. (1377.)

Copper mine, between Howe Sound and Jervis Inlet, B.C.—Coll., G. M. Dawson, 1885. (5184.)

Table-case 52.

Little Whale River, Hudson Bay.—Coll., R. Bell, 1877. (1739.)

Lac aux Iles, Portneuf county, Q.—Coll., A. P. Low, 1891. (5225.)

-- Loc. ? (5638.)

Kamloops, B.C.—Coll., G. M. Dawson. (1380.)

Chalcedony.—Scot's Bay, King's county, N. S.—Coll., C. W. Willimott, 1883.

Spencer Island, Cumberland county, N. S.—Coll., C. W. Willimott, 1888. (5705.)

South side of Masset Inlet, Queen Charlotte Islands, B. C.—Coll., G. M. Dawson, 1878. (4519.)

North of Little Whale River, Hudson Bay.—Coll., R. Bell, 1877.

Belanger's Island, east coast of Hudson Bay.—Coll., R. Bell, 1877.
 (4518.)

Prase.—Mountains at the head of Nicoamen River, B. C.—Coll., G. M. Dawson, 1889. (1260.)

Agate.—Two Islands, Cumberland county, N. S.—Coll., C. W. Willimott, 1883.

Big Island, Two Islands, Cumberland county, N. S.—Coll., C. W. Willimott, 1888. (5675.)

moss. Two Islands, Cumberland county, N. S.—Coll., C. W. Willimott, 1888. (5679.)

Cape Blomidon, King's county, N. S.—Coll., C. W. Willimott, 1883. (1308.)

Thunder Bay, Lake Superior, O. (1385.)

Fishing Cove Camp, west of Richmond Gulf, Hudson Bay.—Coll., R. Bell, 1877. (1737.)

Jasper.—Woodworth Cove, King's county, N. S.—Coll., R. W. Ells, 1876. (4546.)

Digby Neck, Digby county, N. S.—Coll., H. How, 1868. (1390.)

Victoria Harbour, King's county, N. S.—Coll., C. W. Willimott, 1883. (4549.)

Two Islands, Cumberland county, N. S.—Coll., C. W. Willimott, 1883. (1389.)

Point la Lime, Restigouche county, N. B.—Coll., H. P. Brumell, 1882. (1412.)

Rivière Ouelle, Kamouraska county, Q.—Coll., J. Richardson. (1387.)

#### A .- Oxides of Silicon -- Continued.

Jasper.—Lot 15, range X. of Hull, Ottawa county, Q.—Coll., C. W. Willi-Table-case mott, 1883. (4547.)

— Glenora Landing, Stikeen River, B. C.—Presented by Capt. Irvine, Continued. 1874. (4520.)

Pseudomorphous quartz (after chabazite).—Horse-shoe Cove, Cape d'Or, Cumberland county, N. S.—Coll., C. W. Willimott, 1888.

Silicified wood.—Long Lake, district of Assiniboia, N. W. T.—Presented by W. Dickson, 1890. (2065.)

Ross Coulée, Irvine, district of Assiniboia, N. W. T.—Coll., T. C. Weston. (5494.)

Opal var. common.—Savona Mountain, south of Savona station, C. P. R., B. C.—Coll., G. M. Dawson, 1890. (5988.)

- var. cacholong.—Two Islands, Cumberland county, N. S.—Coll., C. W. Willimott, 1892. (1386.)

var. hyalite.—Near Hī-hūm Lake, south of Loon Lake, B. C.—
 Coll., J. McEvoy, 1888. (1609.)

— var. tripolite.—Head of Loon Lake, B. C. (5645.)

do do Fountain Lake, Amherst, Cumberland county,
 N. S.—Presented by A. Mackenzie, 1885. (5750.)

#### B .-- Oxides of the Metals.

Senarmontite.—Lot 28, range I. of South Ham, Wolfe county, Q.—Coll., C. W. Willimott, 1882. (1371.)

Valentinite.—Lot 28, range I. of South Ham, Wolfe county, Q.—Coll., C. W. Willimott, 1882. (1327, 4515.)

Molybdite.—Lot 22, range II. of Ross, Renfrew county, O.—Coll., C. W. Willimott, 1882. (1732.)

Tungstite.—Lot 1, range VII. of Marlow, Beauce county, O.—Coll., W. F. Ferrier, 1891. (1210.)

Cuprite.—Spencer Island, Cumberland county, N.S.—Coll., C. W. Willimott, 1888. (5984.)

Hematite.—Jacksonville, Carleton county, N.B.—Coll., R. W. Ells, 1874. (1335.)

 Lot 2, range IV. of Elzevir, Hastings county, O.—Coll., H. G. Vennor. (1336.)

Lot 12, range V. of Madoc, Hastings county, O.—Coll., C. W. Willimott, 1885. (1725.)

Leeds, Leeds county, O. (1332.)

fossiliferous.—Lot 11, range I. of West Flamborough, Wentworth county, O.—Coll., R. Bell, 1861. (1334.)

— Batchehwahnung Bay, district of Algoma, O.—Coll., T. Macfarlane, 1865. (1333.)

Silver Lake, township of McTavish, district of Thunder Bay, O.—
 Coll., R. Bell, 1875. (1338.)

var. specular iron.—Lot 22, range III. of Shefford, Shefford county,
 Q.—Presented by J. A. Leatch, 1886. (1363.)

— var. specular iron.—Lot 15, St. Armand West, Missisquoi county, Q.—(1331.)

var. specular iron.—Salmon River, Guysborough county, N.S.—
 Coll., H. Fletcher, 1883. (1367.)

-- var. specular iron.—Lot 28, range VI. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1874. (1294, 1354.)

Table-case

# B. -Oxides of the Metals-Continued.

Table-case 53. - Continued.

Hematite.—var. specular iron, and magnetite.—Lot 28, range VI. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1874.

- var. micaceous iron ore.—Sutton, Brome county, Q. (1328.)

Martite.—North Mountain, Digby Neck, Digby county, N.S.—Coll., H. How, 1868. (1339, 1340.)

— Dalhousie mine, lot 1, range IV. of Dalhousie, Lanark county, O.— Presented by A. M. Campbell, 1890. (5978.)

Ilmenite.—Chegoggin Point, Yarmouth, Yarmouth county, N.S.—Coll., L. W. Bailey, 1892. (1537.)

- St. Urbain, Bay St. Paul, Charlevoix county, Q. (1341.)

— with rutile.—St. Urbain, Bay St. Paul, Charlevoix county, Q.— (1342.)

Spinel.—Bathurst, Lanark county, O. (1345, 1346.)

 disseminated through crystalline limestone.—Lot 16, range X. of Portland West, Ottawa county, Q. (4714.)

Lot 7, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882. (4584.)

Magnetite.—Lot 11, range V. of Madoc, Hastings county, O.—Coll., C. W. Willimott, 1883. (1351.)

— Portage du Fort, Pontiac county, Q.—Coll., H. G. Vennor. (1347.)

North Mountain, seven miles west of Digby, Digby county, N.S.—
 Coll., H. How, 1868. (1348.)

— Mount Hanly, Annapolis county, N.S.—Coll., H. How, 1868. (1352.)

- Lot 9, range IX. of Sutton, Brome county, Q. (1349.)

Bathurst, Lanark county, O. (1350.)

Chromite.—Mount Albert, Shickshock Mountains, Gaspé county, Q.—Coll., J. Richardson, 1858. (1355.)

with serpentine.—South Ham, Wolfe county, Q.—Coll., J. Richardson. (1356.)

Lot 21, range II. of South Ham, Wolfe county, Q.—Coll., J. Richardson. (1357.)

Rutile.—Lot 12, range XI. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1874. (1358.)

-- Sutton, Brome county, Q.—Coll., J. Richardson. (1359.)

Pyrolusite. - Markhamville, King's county, N.B. (1364.)

Teny Cape, Hants county, N.S. Coll., C. W. Willimott, 1883. (1360, 4539, 4542.)

— Churchill's mine. Walton, Hants county, N.S.—Coll., C. W. Willimott, 1883. (4540.).

Turgite.—Teny Cape, Hants county, N.S.—Coll., C. W. Willimott, 1883. (5979.)

Göthite.—Black Rock, near the mouth of the Shubenacadie River, Colchester county, N. S.—Coll., B. J. Harrington, 1874. (1365.)

Manganite.—Teny Cape. Hants county, N. S.—Coll., C. W. Willimott, 1883. (1317, 4541.)

Table-case 54.

Limonite.—Acadia Mines, Londonderry, Colchester county, N. S.—Coll., A. R. C. Selwyn, 1872. (379, 2053.)

var. bog iron ore.—Lac la Tortue, Champlain county, -Q.—Coll.,
 H. P. Brumell, 1892. (1322.)

— var. bog iron ore.—St. Vallier, Bellechasse county, Q. (1369.)

var. bog iron ore.—Darling, Lanark county, O.—Presented by W.
H. Wylie. (4545.)

#### B .- Oxides of the Metals-Continued.

Limonite.—var. bog iron ore.—Texada Island, B. C.—Presented by John Table-case Campbell, 1891. (5340.)

Psilomelane.—Gowland Mountain, Elgin, Albert county, N. B.—Presented by Continued J. L. Harris, 1885. (5040.)

Wad.—Dawson Settlement, Hillsborough, Albert county, N. B.—Coll., H. P. Brumell, 1892. (1370.)

## VI.-OXYGEN SALTS.

#### I .- Carbonates.

- Calcite, mas.—Lot 6, range XII. of Orford, Sherbrooke county, Q.—Coll., C. W. Willimott. (5544.)
  - mas. purplish.—Markhamville, King's county, N.B.—Coll., H. P. Brumell, 1891. (1672.)
    - mas. yellow.—Lot 14, range XI. of Templeton, Ottawa county, Q.—
       Coll., B. J. Harrington, 1874. (1664.)
  - mas. blue.—Grand Falls, Calumet Island, Pontiac county, Q.—
     Coll., C. W. Willimott, 1879. (1670.)
    - mas. salmon red.—Grand Falls, Calumet Island, Pontiac county, Q.—Coll., C. W. Willimott, 1879. (1676.)
  - -- mas. salmon red.—Lake Clear, Sebastopol, Renfrew county, O.— Presented by J. G. Miller, 1882. (1724.)
  - mas. brown.—Point Porphyry, Lake Superior, O. (1671.)
  - mas. with native copper.—St. Ignace Island, Lake Superior, O.—Coll., W. E. Logan, 1846. (1655.)
  - fibrous.—Lot 8, range IX. of Templeton, Ottawa county, Q.—Coll.,
     C. W. Willimot, 1879. (1667.)
  - mas. fœtid, with tourmaline.—Lot 10, range XI. of Chatham, Argenteuil county, Q.—Coll., C. W. Willimott, 1882. (1668.)
    - erys. Montreal, Hochelaga county, Q. (1660, 1663.)
  - erys.—Partridge Island, Cumberland county, N.S.—Coll., C. W. Willimott, 1888. (5669.)
  - crys.—West of Swan Creek, Cumberland county, N.S.—Coll., C.
     W. Willimott, 1888. (5671.)
  - -- crys.—New Quarries, Hull, Ottawa county, Q.—Čoll., H. M. Ami, 1888. (5683.)
  - -- crys.—Five Islands, Colchester county, N.S.—Coll., S. Barlow, 1875. (1654.)
  - crys.—Chapel Point, N.B. (1674.)
  - crys.—Near Point Porphyry, Lake Superior, O. (1658.)
  - crys.—Loc. (?). (1659.)
  - crys.—Thunder Bay, Lake Superior, O. (1652.)
  - crys.—Beaver mine, township of O'Connor, district of Thunder Bay,
     Lake Superior, O.—Presented by T. A. Keefer, 1886. (6508.)
  - rad.—South side of Alright Island, Magdalen Islands, Q.—Coll., J. Richardson, 1881. (3543.)
  - crys.—Belly River, district of Alberta, N.W.T.—Coll., G. M. Dawson, 1881. (4619.)
  - var. dog-tooth spar. —Five Islands, Colchester county, N.S.—Coll.,
     S. Barlow, 1875. (1657, 1666.)

#### 1 .- Carbonates -- Continued.

Table-case Calcite.—var. dog-tooth spar.—Orford nickel mine, lot 6, range XII. of Orford, Sherbrooke county, Q.—Coll., C. W. Willimott. (1669.)

— var. dog-tooth spar.—Niagara Falls, Welland county, O.—Coll., R.

Bell, 1859. (1653.)

var. dog-tooth spar.—Teny Cape, Hants county, N.S.—Coll., C.
 W. Willimott, 1883. (4622.)

— var. nail-head spar.—Teny Cape, Hants county, N.S.—Coll., C. W. Willimott, 1883. (1661.)

— var. nail-head spar.—Belly River, district of Alberta, N.W.T.—Coll., G. M. Dawson, 1881. (1662.)

Calcareous tufa.—Tobique River, above Plaster Rock, Victoria county, N.B.—Coll., W. McInnes, 1886. (6511.)

— Dundas, Wentworth county, O.—Coll., R. Bell, 1859. (1679.)

Table-case 55.

Dundas, Wentworth county, O.—Coll., R. Bell, 1859. (1682, 1683, 1684.)

— Cayuga, Haldimand county, O.—Coll., R. Bell, 1859. (1678, 4625.)

Caledon, Peel county, O. (1677, 1680.)

Dolomite.—Lot 10, range IV. of Aldfield, Pontiac county, Q.—Presented by R. H. G. Chapman, 1885. (1685.)

— with calcite.—Niagara Falls, Welland county, O.—Coll., R. Bell, 1859. (1687.)

Niagara Falls, Welland county, O.—Coll., R. Bell, 1859. (1688, 1690.)

Ankerite.—Acton, Bagot county, Q.—Coll., J. Richardson. (1692.)

Cumberland Brook, Acadia mines, Londonderry, Colchester county,
 N.S.—Coll., C. W. Willimott, 1883. (1693.)

Magnesite.—Lot 17, range IX. of Bolton, Brome county, Q.—Coll., J. Richardson. (1694.)

Siderite.—Sutherland's River, Pictou county, N.S.—Coll., B. J. Harrington, 1874. (1697.)

— New Mines, Acadia mines, Londonderry, Colchester county, N.S.— Coll., A. E. Barlow, 1884. (4970.)

— Cow Bay, Cape Breton county, N.S.—Coll., H. Fletcher, 1874.

- Flint Island, Hudson Bay.—Coll., R. Bell, 1877. (1733.)

Clay iron-stone.—Cow Bay, Cape Breton county, N.S.—Coll., H. Fletcher, 1875. (2091.)

Edmonton, district of Alberta, N.W.T..—Coll., R. W. Ells, 1875.

Witherite.—Porcupine (Twin Cities) mine, township of Gillies, district of Thunder Bay, O.—Coll., E. D. Ingall, 1886. (1681.)

Strontianite.—Nepean, Carleton county, O.—Presented by C. P. Willimott & Co., 1890. (6500.)

Cerussite.—Wellington mine, vicinity of Bear Lake, on the Kaslo-Slocan Road, West Kootanie, B.C.—Presented by Hector McRae, 1892. (5227.)

Malachite.—Lot 9, range IX. of Sutton, Brome county, Q.—Coll., C. W. Willimott, 1882. (1686.)

Azurite on chalcopyrite.—Killaly's location, Lake Huron, district of Algoma, O. (1699.)

Dawsonite on felspathic trap.—From near the western end of McGill College,
Montreal, Hochelaga county, Q.—Coll., B. J. Harrington.
(1698.)

56

#### 2 -Silicates -- Titanates

## A -ANHYDROUS SILICATES

A.—Disilicates, Polysilicates,

Orthoclase, mas.—From the coast of Labrador. (1495.) Table-case mas. River Bayonne, Berthier county, Q. (1485.) 55 Continued. mas. River Rouge, Argenteuil county, Q. (1482.) mas. North Crosby, Leeds county, O. (1484.) mas. (aventurine).—Lot 32, range XII. of Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1883. (1420.) crys.—Lot 21, range VII. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1877. (1490.) crys.—Lot 31, range I. of Villeneuve, Ottawa county, Q.—Coll., C. W. Willimott, 1891. (1493.) crys.—Lot 32, range XII. of Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1883. (1483, 4827, 4845.) Perthite.—Lot 4, range VI. of North Burgess, Lanark county, O.—Coll., C. W. Willimott, 1883. (1494, 4580.) Microcline.—Lot 31, range I. of Villeneuve, Ottawa county, Q.—Presented by L. H. Shirley, 1886. (5285.) var. Amazonstone.—Hull, Ottawa county, O.—Presented by Mr. Table-case Garrett. (1491.) var. Amazonstone.—Lot 6, range A of Cameron, district of Nipissing, O.—Coll., C. W. Willimott, 1891. (4583.) Albite, mas.—Lot 20, range V. of Buckingham, Ottawa county, Q.—Coll., C. W. Willimott, 1892. (1290.) mas.—North Burgess, Lanark county, O. (1368.) crys.—Lot 31, range I. of Villeneuve, Ottawa county, Q.—Coll., C. W. Willimott, 1891. (5512.) mas.—Lot 31, range I. of Villeneuve, Ottawa county, Q.—Presented by L. H. Shirley, 1886. (4559.) crys.—Rathwell's lot, Bromley, Renfrew county, O.—Coll., C. W. Willimott, 1891. (1489.) crys.—Lot 5, range I. of Ross, Renfrew county, O.—Coll., C. W. Willimott, 1891. (1492.) var. peristerite.—Lot 19, range IX. of Bathurst, Lanark county. O. Oligoclase.—Mount Johnson, Iberville county,-Q. (1488.) Lot 12, range XVI. of Hull, Ottawa county, Q.—Coll., C. W. Willimott, 1882. (3546.) Lot 8, range III. of Dryden, district of Nipissing, O.—Coll., A. E. Barlow, 1890. (5985.) Andesite,—Château Richer, Montmorency county, Q. (1486.) Labradorite.—Labrador. (1479.) River Peribonka, about thirty miles from the entrance to Lake St. John, Chicoutimi county, Q.-Coll., F. D. Adams, 1884. Anorthite.—Yamaska Mountain, Yamaska county, Q. (1487.) Huronite.—Timber limit 90, a quarter of a mile north of Murphy Lake, district

of Algoma, O.—Coll., A. E. Barlow, 1891. (1691.) From between Loch Alch and Missinaibi stations, C.P.R., district of Algoma, O.—Coll., B. J. Harrington. (5277.)

# 2 -Silicates,-Titanates-Continued.

R \_ Metasilicates. Hypersthene, Labrador.--Coll., T. Sterry Hunt, 1869. (1392.) Table-case (Paulit).—Paul Island, Nain, Labrador.—Coll., R. Bell, 1884. 56 -· Continued. (5274.)From the vicinity of Hébertville, township of Labarre, Chicoutimi county, Q.—Coll., F. D. Adams, 1883. (1705.) Pyroxene.—Lot 10, range V. of Grenville, Argenteuil county, Q. (396.) Lot 6, range I. of Portland, Ottawa county, Q. (1404.) var. diopside.—Lot 6, range XII. of Orford, Sherbrooke county, Q.—Coll., C. W. Willimott, 1883. (5496-5498.) var. diopside.—Lot 6, range XII. of Orford, Sherbrooke county, Q.—Coll., C. W. Willimott, 1882. (1403, 1707, 1723.) Ste. Anne des Monts, Gaspé county, Q. (1408.) Grand Falls, Calumet Island, Pontiac county, Q. (1407, 1413.) var. diopside.—Ragged Chute, Madawaska River, Blythfield, Renfrew county, O. (1398.) Grenville, Argenteuil county, Q. (1402.) Emerald mine, lot 19, range XII. of Buckingham, Ottawa county, Q.—Coll., C. W. Willimott, 1889. (1750.) Lot 12, range XV. of Hull, Ottawa county, Q.—Coll., C. W. Willimott, 1890. (6516.) South half lot 11. range XV. of Hull, Ottawa county, Q.—Coll., C. W. Willimott, 1870. (247.) Let 18, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882. (4522.) Lot 18, range II. of Wakefield, Ottawa county, Q —Coll., C. W. Willimott, 1883. (4524.) Table-case twin crystal.—Lot 18, range II, of Wakefield, Ottawa county, Q.— Coll., C. W. Willimott, 1883. (6514.) Lot 18, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1883. (6515.) Lot 6, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882. (562.) Lot 7, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott. (3326.) Haycock mine, lot 28, range VI. of Templeton, Ottawa county, Q .-Coll., B. J. Harrington, 1878. (1414.) Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878. (1400.)Lot 32, range XII. of Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1884. (1409, 4847, 4861.) Island D, Lake Clear, Sebastopol, Renfrew county, O.—Presented by J. G. Miller, 1882. (4521, 4525.) Toomah Bay, Bob's Lake, Bedford, Frontenac county, O.—Presented by W. J. Morris. (1406.) Lot 2, range IX. of North Burgess, Lanark county, O. (1399.) Bathurst, Lanark county, O. (1401.) var. diallage. - Orford, Sherbrooke county, Q. (1395.) var. augite. -- Montreal, Hochelaga county, Q. (1416.)

Wollastonite.—Lot 10, range V. of Grenville, Argenteuil county, Q.—Coll., C.

Lot 7, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1891. (1480.)

W. Willimott, 1878. (1396.)

#### 2.—Silicates.—Titanates—Continued.

# B.—Metasilicates,—Continued.

Pectolite.—McKellar's (Cathcart) Point, Lake Superior, O.—Coll., W. E. Logan, 1846. (1517.)

Table-case 57.—

- Amphibole (hornblende).—From the vicinity of Foster's Bar, about 23 miles above Lytton, Fraser River, B.C. (1270.)

   (hornblende).—Lot 17, range IX, of Templeton, Ottawa county, O.
  - (1423.)
  - (hornblende).—Grand Falls, Calumet Island, Pontiac county, Q. (1418.)
    - (hornblende).—Blythfield, Renfrew county, O. (1419.)
  - (hornblende).—Lot 7, range IX. of Ross, Renfrew county, O.—Coll., C. W. Willimott, 1883. (4535.)
  - (hornblende).—Lot 12, range XVI. of Hull, Ottawa county, Q.—
     Coll., C. W. Willimott, 1882. (4554.)
  - (hornblende).—Lot 17, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882. (1421.)
  - -- (hornblende).—Lot 32, range XII. of Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1882. (1410.)
  - (hornblende).—Lot 21, range IX. of Bedford, Frontenac county, O.
     —Coll., H. G. Vennor. (1426.)
  - (hornblende).—Eight portage, Wabinosh River, Lake Nipigon, O.—
     Coll., R. Bell, 1871. (1429.)
  - var. tremolite.—North Burgess, Lanark county, O. (1427.)
    - var. tremolite.—Lot 23, range IV. of Ross, Renfrew county, O.— Coll., C. W. Willimott, 1883. (1428, 5501.)
  - var. raphilite.—West half of lot 26, range XII. of Bathurst, Lanark county, O.—Coll., C. W. Willimott, 1892. (1276.)
  - var. raphilite. Dalhousie, Lanark county, O. (1430.)
  - var. actinolite. Frampton, Dorchester county, Q. (2391.)
  - var. actinolite.—Westmeath, Renfrew county, O. (1298.)
  - var. nephrite.—Near Miles Cañon, Lewis River, a tributary of the Yukon River, N.W.T.—Coll., W. Ogilvie, 1887. (2106.)
  - var. asbestus.—Potton, Brome county, Q. (1431.)
  - var. asbestus.—Marmora, Hastings county, O. (1432.)
  - var. mountain leather.—Beaver mine, township of O'Connor, district of Thunder Bay, O. (254.)
  - var. mountain leather.—Lake Girard mine, lot 23, range II. of Wakefield, Ottawa county, Q.—Presented by T. J. Watters, 1892. (5284.)
  - var. mountain cork.—Emerald mine, lot 19, range XII. of Buckingham, Ottawa county, Q.—Coll., C. W. Willimott, 1889.
     (5471.)
  - (uralite).—Lot 23, range XIII. of Templeton, Ottawa county, Q.— Presented by J. G. Miller, 1882. (4527.)
- Beryl.—Brassard, Berthier county, Q.—Presented by D. Aikman, 1886. (1314.)

   North shore of Lake Kenogami, Chicoutimi county, Q.—Coll., F.
  - North shore of Lake Kenogami, Chicoutimi county, Q.—Coll., F.
     D. Adams, 1884. (4945.)
     De Maisonneuve, Berthier county, Q.—Coll., N. J. Giroux, 1892.
- Table-case 58.

C.—Orthosilicates.

(5510.)

Sodalite.—Mount Royal (Reservoir extension), Montreal, Hochelaga county, Q. —Presented by B. J. Harrington, 1886. (1478.)

# 2.—Silicates.—Titanates—Continued.

C. = Orthosilicates .-- Continued Sodalite.-Vicinity of Ice River, a tributary of the Beaver-foot River, south of Table-case Dawson, 1884. (1476.) 58 -Continued Lot 29, range XIII. of Dungannon, Hastings county, O. (1633.) Garnet.—Orford, Sherbrooke county, Q. (4556.) var. grossularite.—Lot 7, range I. of Wakefield, Ottawa county, Q. —Coll., C. W. Willimott, 1884. (1451, 4853.) var. grossularite.—Lot 12, range I. of Litchfield, Pontiac county, Q. (1253.) var. essonite.—Lot 12, range I, of Wakefield, Ottawa county, Q.— Coll., C. W. Willimott, 1884. (4573.) var. almandite.—Chegoggin Point, west side, Yarmouth, Yarmouth county, N.S.—Presented by J. D. Huntingdon, 1892. (1275.) var. almandite.—Garnet Creek, Stikeene River, B.C.—Coll., A. R. C. Selwyn. (1452.) var. almandite, in micaceous schist.—Garnet Creek, Stikeene River, B.C.—Coll., A. R. C. Selwyn. (2813.) North-east side of Bay St. Paul, Charlevoix county, Q.—Coll., S. Barlow, 1857. (1446, 1449.) Marmora, Hastings county, O. (1450.) Barrie, Frontenac county, O. (1448.) var. spessartite.—Lot 31, range I. of Villeneuve, Ottawa county, Q.—Coll., C. W. Willimott, 1891. (1269.) spessartite, in muscovite.—Lot 31, range I. of Villeneuve, Ottawa county, Q.—Coll., C. W. Willimott, 1891. (5339.) var. andradite.—Cawood, Pontiac county, Q. (284.) var. andradite.—Vicinity of Foster's Bar, about twenty-three miles above Lytton, Fraser River, B.C. (5554.) var. andradite.—Malaspina mine, north-east side of Texada Island, B.C.—Coll., G. M. Dawson, 1885. (1474, 5500.) var. andradite. - From near the head of Barclay Sound, Vancouver Island, B.C. (5986.) chromiferous.—Lot 6, range XII. of Orford, Sherbrooke county, Q.—Coll., C. W. Willimott, 1882. (441.) chromiferous.—Lot 6, range XII. of Orford, Sherbrooke county, Q.—Coll., A. R. C. Selwyn, 1879. (1445.) chromiferous.—South Ham, Wolfe county, Q.—Coll., A. R. C. Selwyn. (6522.) Chrysolite.—Mount Albert, Shickshock Range, Gaspé county, Q. (1434.) Montarville, Chambly county, Q. (1436.) Rougemont, Rouville county, Q. (1425.) Scapolite.—Lot 20, range VII. of Lansdowne, Leeds county, O. (1473.) Lot 3, range III. of the Augmentation of Grenville, Argenteuil county, Q.—Coll., C. W. Willimott, 1885. (4561.) Table-case

Augmentation of Grenville, Argenteuil county, Q. (1467.)

Lot 21, range XII. of Templeton, Ottawa county, Q.—Coll., C. W. Willimott, 1879. (1469, 1472.) Lot 14, range XII. of Templeton, Ottawa county, Q.-Coll., B. J.

Harrington, 1874. (1471.)

Lot 31, range IX. of Low, Ottawa county, O.—Coll., C. W. Willimott, 1891. (442.)

Calumet Portage, Pontiac county, Q. (1475.)

Table-case

59.— Continued.

#### 2.—Silicates.—Titanates -- Continued.

# C.—Orthosilicates.—Continued.

Scapolite.—Wakefield, Ottawa county, Q. (4560.)

— Lot 7, range IX. of Ross, Renfrew county, O.—Coll., C. W. Willimott, 1883. (231.)

Lake Clear, Sebastopol, Renfrew county, O.—Presented by J. G. Miller, 1882. (4581.)

Lot 13, range VI. of Ross, Renfrew county, O.—(1470.)

Wilsonite.—Lot 2, range IX. of North Burgess, Lanark county, O. (1477.)

- Lot 10, range X. of Templeton, Ottawa county, Q.--Coll., C. W. Willimott, 1882. (4576.)
- Lot 23, range XIII. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1874. (5511.)
- Lot 23, range XIII. of Templeton, Ottawa county, Q.—Presented by J. G. Miller, 1882. (4578.)

Cacoclasite.—Lot 7, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882. (4537.)

Vesuvianite.—Frye's (Cailiff's) Island, Charlotte county, N.B. (1443.)

- Lot 17, range XII. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1874. (1440.)
- Lot 12, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882. (1442, 4555.)

Zircon,—Lot 10, range V. of Grenville, Argenteuil county, Q. (1439.)

- Templeton, Ottawa county, Q.—Presented by F. W. Henshaw. (1437.)
- Lot 31, range X. of Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1883. (4832, 4833.)
- (twin crystal).—Lot 31, range X. of Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1883. (4532.)
- Brudenell, Renfrew county, O.—Coll., C. W. Willmott, 1883. (4533.)

Andalusite.—St. Stephen, Charlotte county, N.B. (1512.)

- var. chiastolite.—Two miles south of Lawlors Lake, on the new road to Isaacs Harbour, Guysborough county, N.S.—Coll., E. R. Faribault, 1887. (5517.)
- -- and staurolite.—Crow's Nest mine, St. Mary's, Guysborough county, N.S.—Coll., E. R. Faribault, 1887. (5516.)
- Fibrolite.—Lot 9, range III. of Dryden, district of Nipissing, O.—Coll., A. E. Barlow, 1890. (1326.)
- Cyanite.—Lot 9, range III. of Dryden, district of Nipissing, O.—Coll., A. E. Barlow, 1890. (1329, 5145.)
- Epidote.—New River Bridge, Charlotte county, N.B.—Coll., G. F. Mathew, 1876. (4558.)
  - Clifton, parish of Kingston, King's county, N.B.—Coll., L. W. Bailey, 1870. (1458.)
  - Shickshock Mountains, Gaspé county, Q. (1454.)

— Renfrew county, O. (4557.)

- Mouth of river two miles south of Poplar River, Lake Nipigon, district of Thunder Bay, O.—Coll., P. McKellar, 1869. (1455.)
- North shore of Upper Lake Abittibi, O.—Coll., W. McOuat, 1872. (1456.)
- Second point north of Richmond Gulf, Hudson Bay.—Coll., R. Bell, 1877. (1730.)

# 2. Silicates. Titanates - Continued.

## C.—Orthosilicates.—Continued.

Table-case 59—. Continued. Table-case 60.

Epidote.—South shore of Johnstone Strait, opposite Forward Bay, Vancouver Island, B. C.—Coll., D. B. Dowling, 1885. (6510.)

Harrison Lake, B.C.—Coll., A. Bowman, 1884. (6509.)

Axinite.—One mile and a half south of Little Whale River, east coast of Hudson Bay.—Coll., R. Bell, 1877. (1457.)

Prehnite.—Lake Superior, O.—Coll., W. E. Logan, 1846. (1519-1521.)

— Michipicoten Island, Lake Superior, O. (1522.)

## D.—Subsilicates.

Chondrodite.—South Crosby, Leeds county, O. (1501.)

Ilvaite.—Vicinity of Ottawa, Carleton county, O. (1453.)

— From near the head of Barclay Sound, Vancouver Island, B.C. (1301.)

Tourmaline.—McGregor's quarry, Lachute, Argenteuil county, Q. (1505.)

Lot 10, range XI. of Chatham, Argenteuil county, Q. (1405.)

- Templeton, Ottawa county, Q. (1901.)

— Grand Falls, Calumet Island, Pontiac county, Q. (1506.)

- Near Hunterstown, Maskinongé county, Q. (1735.)

Lot 17 or 18, range XIV. of Hull, Ottawa county, Q.—Coll., C. W. Willimott, 1891. (1502, 1503.)

 Lot 26, range VII. of Wakefield, Ottawa county, Q.—Presented by L. H. Shirley, 1886. (1509.)

 Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1888 (5695, 5697 to 5702.)

Lot 31, range I. of Villeneuve, Ottawa county, Q.—Coll., C. W. Willimott, 1887. (5514, 5515.)

-- Bathurst, Lanark county, O. (1507.)

Lot 27, range III. of Ross, Renfrew county, O.—Coll., C. W. Willimott, 1883. (1324.)

-- Lot 27, range III. of Ross, Renfrew county, O.—Coll., J. Richardson, 1853. (1508.)

- Pakenham, Lanark county, O. (1504.)

- Fitzroy, Carleton county, O. (1510.)

- Madoc, Hastings county, O. (1511.)

Staurolite.—Moore's Mills, Charlotte county, N.B.—Coll., L. W. Bailey, 1870. (1516.)

— Carleton, Shelburne county, N.S.—Coll., L. W. Bailey, 1890. (222.)

 One hundred yards south of Crow's Nest mine, St. Mary's, Guysborough county, N.S.—Coll., E. R. Faribault, 1886. (5393.)

## B.—Hydrous Silicates.

# A .- Zeolite division.

Apophyllite.—Sheffield Vault, King's county, N.S.—Coll., C. W. Willimott, 1883. (4594.)

Cape Blomidon, King's county, N.S.—Coll., C. W. Willimott, 1883.
 (4565.)

with stilbite.—Blomidon, King's county, N.S.—Coll., C. W. Willimott, 1883. (4587.)

with heulandite.—Blomidon, King's county, N.S.—Coll., C. W. Willimott, 1883. (4588.)

— Spar Island, Lake Superior, district of Thunder Bay, O. (1528.)

# 2.—Silicates,—Titanates—Continued.

A.—Zeolite division.—Continued.

Steeleite.—Cape Split, King's county, N.S.—Coll., C. W. Willimott, 1883. Table-case (4592.)

Heulandite.—Blomidon, King's county, N.S.—Coll., C. W. Willimott, 1883. (1555, 1556.)

- Two Islands, Cumberland county, N.S.—Coll., C. W. Willimott, 1888. (5692.)
- West side of Horseshoe Cove, Cumberland county, N.S.—Coll., C. W. Willimott, 1888. (5647.)
- -- Dalhousie, Restigouche county, N.B.—Coll., R. W. Ells, 1881. (1557.)
- Harmotome.—Beaver mine, township of O'Connor, district of Thunder Bay, O.
  —Coll., A. C. Lawson. (1497.)
- Stilbite.—Cape d'Or, Cumberland county, N.S.—Coll., R. W. Ells, 1876. (1546, 1548, 1549.)
  - Blomidon, King's county, N.S.—Coll., C. W. Willimott, 1883.
     (1544, 1547, 4595.)
  - Partridge Island, Cumberland county, N.S.—Coll., C. W. Willimott, 1883. (5520.)
  - -- with calcite.—Partridge Island, Cumberland county, N.S.—Coll., R. W. Ells, 1876. (1542.)
  - with analcite.—Partridge Island, Cumberland county, N.S.—Coll., C. W. Willimott, 1888. (5689.)
  - Port George, Annapolis county, N.S.—Coll., C. W. Willimott, 1883. (4601.)
  - Victoria Harbour, King's ccunty, N.S., Coll., C. W. Willimott, 1883. (1543, 1561.)
  - Victoria Harbour, King's county, N.S.,—Coll., C. W. Willimott, 1883. (4586, 4589, 4600.)
  - Black Rock, King's county, N.S.—Coll., C. W. Willimott, 1883.
  - Sheffield Vault, King's county, N.S.—Coll., C. W. Willimott, 1883. (4599.)
  - West side of Horseshoe Cove, Cumberland county, N.S.—Coll., C. W. Willimott, 1888. (5648.)
  - West side of Fog Whistle, Cape d'Or, Cumberland county, N.S.—
     Coll., C. W. Willimott, 1888. (5651.)
  - Bennet's Brook, east of Horseshoe Cove, Cumberland county, N.S.—
     Coll., C. W. Willimott, 1888. (5652.)
  - Hall's Harbour, King's county, N.S.—Coll., C. W. Willimott, 1883. (1551.)
  - Salmon River, nine miles above Grand Prairie, B.C.—Coll., G. M. Dawson, 1877. (1541.)
  - Digby Neck, Digby county, N.S.—Coll., L. W. Bailey, 1892. (1527, 1530.)
- Laumontite.—West side of Fog Whistle, Cape d'Or, Cumberland county, N.S.—Coll., C. W. Willimott, 1888. (5713.)
  - Black Rock, King's county, N.S.—Coll., C. W. Willimott, 1883.
  - Two Islands, Cumberland county, N.S.—Coll., C. W. Willimott, 1892. (237.)
- Chabazite.—Two Islands, Cumberland county, N.S.—Coll., C. W. Willimott, 1888. (5656, 5657, 5690.)
  - -- Between Cape Spencer and Cape d'Or, Cumberland county, N.S.—Coll., S. Barlow, 1878. (1539.)

#### 2 .- Silicates .- Titanates - Continued.

## A.—Zeolite division.—Continued.

Table-case Chabazite.—Two Islands, Cumberland county, N.S.—Coll., C. W. Willimott, 62. (4593.)

with heulandite.—Two Islands, Cumberland county, N.S.—Coll.,
 C. W. Willimott, 1888. (5655.)

— West side of Fog Whistle, Cape d'Or, Cumberland county, N.S.—Coll., C. W. Willimott, 1888. (5653, 5654.)

- West of Swan Creek, Cumberland county, N.S.—Coll., C. W. Willimott, 1888. (5650.)

— Swan Creek, Cumberland County, N.S.—Coll., C. W. Willimott, 1883. (4564.)

— Five Islands, Colchester county, N.S.—Coll., C. W. Willimott, 1892. (4596.)

— with stilbite.—Bennet's Brook, east of Horseshoe Cove, Cumberland county, N.S.—Coll., C. W. Willimott, 1888. (5686.)

 Salmon River, nine miles above Grand Prairie, B.C.—Coll., G. M. Dawson, 1877. (1538.)

Gmelinite.—Big Island, Two Islands, Cumberland county, N.S.—Coll., C. W. Willimott, 1888. (5649.)

Analcite.—Blomidon, King's county, N.S.—Coll., R. W. Ells, 1876. (1534.)

West of Horseshoe Cove, Cumberland county, N.S.—Coll., C. W. Willimott, 1888. (5667.)

— Two Islands, Cumberland county, N.S.—Coll., C. W. Willmott, 1888. (5668.)

— Two Islands, Cumberland county, N.S.—Coll., C. W. Willimott, 1883. (1533, 1535, 1536.)

Natrolite.—Cape Split, King's county, N.S.—Coll., R. W. Ells, 1876. (1531, 1532.)

— East of Stronach Brook, King's county, N.S.—Coll., C. W. Willimott, 1883. (1526.)

— Stronach Mountain, King's county, N.S.—Coll., C. W. Willimott, 1883. (4566.)

— Port George, Annapolis county, N.S.—Coll., C. W. Willimott, 1883.

Bennet's Brook, east of Horseshoe Cove, Cumberland county, N.S.
 Coll., C. W. Willimott, 1888. (5685.)

- Cape d'Or, Cumberland county, N.S. (1523.)

- Five Islands, Colchester county, N.S.—Coll., C. W. Willimott, 1892. (1734, 4526.)

— Montreal, Hochelaga county, Q.—Coll., B. J. Harrington. (1525.)

Scolecite.—Black Lake, Coleraine, Megantic county, Q.—Presented by J. T. Donald, 1890. (2104.)

Thompsonite, with analcite.—Hall's Harbour, King's county, N.S.—Coll., C. W. Willimott, 1883. (1524.)

# B.—Mica division.

Muscovite.—Villeneuve mica mine, lot 31, range I. of Villeneuve, Ottawa county, Q.—Coll., C. W. Willimott, 1891. (5504.)

rose-coloured.—Villeneuve mica mine, lot 31, range I. of Villeneuve, Ottawa county, Q.—Coll., C. W. Willimott, 1890. (5503.)

in which are embedded, distorted and more or less flattened, (in the direction of the cleavage planes of the mica) crystals of spess-artite.—Villeneuve mica mine, lot 31, range I. of Villeneuve, Ottawa county, Q.—Presented by W. A. Allan, 1887. (5444.)

#### 2.—Silicates.—Titanates—Continued.

#### B.—Mica division.—Continued.

Muscovite.—Mattawa, district of Nipissing, O. (5506.)

Table-case

- Lot 8, range VII. of Masham, Ottawa county, Q.—Coll., C. W. Willimott, 1891. (1411.)
- with lenticular shaped (in the direction of the cleavage planes of the mica) inclusions of white sub-transparent quartz.—Yeo's Island, Upper St. Maurice River, Portneuf county, Q. (5505.)
- Lot 4, range XI. of Miller, Frontenac county, O.—Presented by E.
   G. Powell. (5377.)
- chromiferous.—Lot 12, range VIII. of Sutton, Brome county, Q.—
   Coll., T. S. Hunt. (1695.)
  - chromiferous.—Matawatchan, Renfrew county, O. (1424.)

Dyssyntribite.—Arisaig, Antigonish county, N.S. (1601.)

Parophite.—St. Nicholas, Lévis county, Q. (1602.)

Wilsonite. - Lot 2, range IX. of North Burgess, Lanark county, O. (240.)

Cookeite.—Wait-a-bit Creek, Columbia River, about two miles north of Donald, B.C.—Coll., J. J. Driscoll. (1417.)

- Biotite.—Lot 13, range VI. of Ross, Renfrew county, O.—Coll., C. W. Willimott, 1883. (1459.)
  - Lot 32, range XII. of Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1891. (4572.)
  - hydrous.—North-east Harbour, Shelburne county, N.S.—Coll., L.
     W. Bailey, 1891. (1550.)
- Phlogopite.—Lot 2, range X. of Grenville, Argenteuil county, Q.—Coll., W. E. Logan, 1853. (1464.)
  - a section of a crystal, in which there occurs a small prism of the same mineral, the vertical axis of which is parallel to the cleavage planes of the enclosing mica.—Lot 15, range VIII. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878. (1460.)
  - North half of lot 10, range V. of Hull, Ottawa county, Q.—Presented by E. B. Haycock, 1892. (1461.)
  - in which is embedded, parallel to the cleavage planes of the mica, some highly distorted octahedra of pyrite.—Lot 10, range XII. of Hull, Ottawa county, Q.—Presented by T. F. Nellis, 1892. (1422.)
  - in which is embedded, parallel to the cleavage planes of the mica, a sharply defined hexagonal plate of molybdenite.—Lot 10, range XII. of Hull, Ottawa county, Q.—Presented by T. F. Nellis, 1892. (1587.)
  - a plate of, upon the face of which, and almost but not quite covering the same, there occurs a thin layer of pale apple-green, fine fibrous, radiated (arborescent-like) actinolite.—Lot 10, range XII. of Hull, Ottawa county, Q.—Presented by A. Trowse, 1892. (6521.)
  - with inclusions of purple fluorite and pyroxene.—South half of lot 9, range XV. of Hull, Ottawa county, Q. (4571.)
  - with inclusions of light blue crystalline calcite.—Lot 7, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1884. (4936.)
  - Lot 7, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882. (4841.)
  - Lot 18, range II. of Wakefield, Ottawa county, Q.—Coll., C. W.
     Willimott, 1883. (1468, 4840.)

# 2 .- Silicates, Titanates Continued.

B.—Mica division.—Continued.

Table-case Phlogopite.—Calumet Island, Pontiac county, Q.--Coll., C. W. Willimott, 64.

twin crystals.—Lot 7, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1884. (1960,)

North Burgess, Lanark county, O.—Coll., H. G. Vennor. (1463.)

in which is embedded, parallel to the cleavage planes of the mica, a
prism of apatite.—Lot 4, range VIII. of North Burgess,
Lanark county, O. (1612.)

Otty Lake, North Burgess, Lanark county, O. (4570.)

Lepidomelane.—Lot 14, range X. of Marmora, Hastings county, O. (6544.)

Chloritoid.—Harvey Hill mine, lot 17, range XV. of Leeds, Megantic county,
Q.—Coll., C. W. Willimott, 1882. (1603.)

- Sutton, Brome county, Q. (1604.)

Ripidolite?—Lot 24, range XII. of Buckingham, Ottawa county, Q.—Coll., J. F. Torrance, 1883. (5583.)

Chlorite.—Harvey Hill mine, lot 17, range XV. of Leeds, Megantic county, Q. (1623.)

- Sutton, Brome county, Q. (1598.)

Lot 4, range V. of Brome, Brome county, Q.—Coll., J. Richardson. (1599.)

West Bay, Lake Nipissing, O.—Presented by P. H. Colton. (5513.)
 Delessite ?—Petite Passage, Digby Neck, Digby county, N.S.—Coll., H. How, 1868. (1600.)

C.—Serpentine and talc division.

Serpentine.—Pisarinco Cove, St. John county, N.B.—Coll., T. S. Hunt, 1869. (1590, 1591.)

Mount Albert, Shickshock Range, Gaspé county, Q.—Coll., J. Richardson, 1858. (1589.)

North-east corner of lot 10, range XVIII. of Orford, Sherbrooke county, Q.—Coll., J. Richardson. (18, 1584.)

Lot 10, range IX. of Bolton, Brome county, Q.—Coll., C. W. Willimott, 1882. (4602.)

--- pseudomorph after actinolite.—Big Island, Lake Nicolet, South Ham, Wolfe county, Q.—Coll., C. W. Willimott, 1882.

Lake Nicolet, South Ham, Wolfe county, Q. (1593.)

var. porcellophite.—Fenwick and Sclater's asbestus mine, Coleraine, Megantic county, Q.—Coll., R. W. Ells, 1889. (19.)

Lot 16, range III. of Grenville, Argenteuil county, Q. (1586, 1588.)

East end of lot 28, range VIII. of Stukely, Shefford county, Q.—

Coll., J. Richardson. (1571.)

Shipton, Richmond county, Q.—Coll., J. Richardson. (1574.)

Grand Falls, Calumet Island, Pontiac county, Q.—Coll., C. W. Willimott, 1879. (1575, 1577, 1578.)

-- Calumet Portage, Calumet Island, Pontiac county, Q.—Coll., C. W. Willimott, 1879. (1580, 1581, 1582.)

Thirty Island Lake, lot 6, range III. of Bedford, Frontenac county, O.—Coll., C. W. Willimott. (4603.)

Station R, Pelly River, a branch of the Yukon River, N.W.T.—Coll., G. M. Dawson, 1877. (5549.)

-- North-east side of Texada Island, three miles from north-west end, B.C.—Coll., J. Richardson, 1873. (1594.)

Table-case

#### 2.—Silicates,- Titanates—Continued.

C.—Serpentine and talc division.

Serpentine.—var. chrysotile.—Johnson's mine, Thetford, Megantic county, Q.— Table-case Coll., C. W. Willimott, 1882. (1566.)

-- var. chrysotile.—Shipton, Richmond county, Q.—Coll., J. Richard-Continued.

son. (1569.)

— var. chrysotile.—Broughton, Beauce county, Q.—Presented by Dr. Reed, 1883. (4568.)

— var. chrysotile.—Lot 14, range VII. of Broughton, Beauce county, Q.—Presented by Dr. Reed, 1882. (168, 4569.)

var. chrysotile.—Lot 2, range VII. of Potton, Brome county, Q.—
 Coll., J. Richardson. (4591.)

— var. chrysotile.—Lot 17, range V. of Potton, Broine county, Q.— Coll., A. R. C. Selwyn, 1879. (1727.)

var. chrysotile.—Near Lake Nicolet, South Ham, Wolfe county, Q.
 —Coll., A. R. C. Selwyn, 1879. (1728.)

var. chrysotile.—Lot 11, range VII. of Templeton, Ottawa county,
 Q.—Coll., B. J. Harrington, 1878. (1567.)

— var. picrolite.—Big Island, Lake Nicolet, South Ham, Wolfe county, Q. —Coll., C. W. Willimott, 1882. (1729.)

- var. picrolite.—Orford, Sherbrooke county, Q. (1572.)

var. picrolite.—Memphremagog mine, Bolton, Brome county, Q.—
 Coll., C. W. Willimott, 1892. (4608.)

-- var. picrolite.—Lot 18, range VI. of Duhamel, Pontiac county, Q.—Coll., N. J. Giroux, 1890. (1837.)

— var. marmolite.—Orford, Sherbrooke county, Q. (1573.)

Aphrodite.—Grenville, Argenteuil county, Q: (1564.)

Talc.—Lot 17, range V. of Potton, Brome county, Q. (1558.)

— Elizabethtown, Leeds county, O. (1560.)

Lot 24, range II. of Clarendon, Frontenac county, O. (1583.)

Steatite.—Potton, Brome county, Q. (1562.)

- Brome, Brome county, Q. (1563.)

Rensellaerite.—Charleston Lake, Leeds county, O. (1559.)

Pyrallolite.—Lot 8, range VI. of Ramsay, Lanark county, O.—Coll., C. W. Willimott, 1887. (5492.)

Saponite.—St. George or Hog Island, Richmond Bay, north coast of Prince Edward Island. 1595.

Glauconite.—Island of Orleans, River St. Lawrence, Q. (1565.)

D.—Kaolin division.

Kaolinite.—Wentworth, Hants county, N.S.—Presented by S. H. Sweet, 1875. (1597.)

— Grande Frenière, county of Two Mountains, Q. (1592.)

Lot 25, range V. of Acton, Bagot county, Q.—Presented by John Stewart. (213.)

Pholerite.—From just below the Chaudière Falls, Levis county, Q.—Coll., T. S. Hunt, 1854. (1596.)

E.—Concluding division.

Hisingerite.—Lot 19, range II. of Elizabethtown, Leeds county, O. (6545.) Rep. Geol. Can., 1874-75, page 315.

#### 2 \_Silicates.\_Titanates\_Continued.

# C.—TITANO-SILICATES, [TITANATES].

Table-case 65.-Continued.

Titanite.—Brome, Brome county, Q. (1515.)

- Lot 10, range V. of Grenville, Argenteuil county, Q.—Coll., C. W. Willimott. (1514.)
- Lot 8, range XIV. of Hull, Ottawa county, Q.—Coll., C. W. Willimott. 1882. (1513.)
- Lot 7, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882. (214.)
- South Sherbrooke, Lanark county, O.—Presented by W. J. Morris, 1882. (4585.)
- Island D, Lake Clear, Sebastopol, Renfrew county, O.—Presented by J. G. Miller, 1882. (4562, 4563, 5518.)
- Island D, Lake Clear, Sebastopol, Renfrew county, O.—Coll., C.
   W. Willinott, 1883. (4831.)
- Lot 31, range X. of Sebastopol, Renfrew county, O.—Coll., C. W.
   Willimott, 1883. (4536.)

#### 3 .- Niobates, tantalates.

Samarskite.—Lots 1 and 2, range II. of Maisonneuve, Berthier county, Q.— Presented by D. Aikman and W. F. Ferrier. (4943.)

# 4.—Phosphates, | arsenates, vanadates, antimonates], - nitrates.

Table-case 66.

Monazite.—Lot 31, range I. of Villeneuve, Ottawa county, Q. (5521.)

Apatite.—Lot 10, range XI. of Templeton, Ottawa county, Q.—Coll., C. W.

- Willimott, 1882. (244.)

  Lot 11, range XI. of Templeton, Ottawa county, Q.—Coll., C. W. Willimott, 1882. (1607.)
- -- in calcite.—Turner's Island, Lake Clear, Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1883. (1717, 4830.)
- Lot 9, range X. of Templeton, Ottawa county, Q.—Coll., C. W. Willimott, 1882. (1393.)
- with inclusions of calcite.—Templeton, Ottawa county, Q.—Coll.,
   B. J. Harrington, 1878. (1608.)
- Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.
   (1606, 1617.)
- Lot 9, range XIV. of Hull, Ottawa county, Q.—Coll., C. W. Willimott. (1611.)
- -- Lot 18, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882. (4851.)
- -- in calcite.—Grand Falls, Calumet Island, Pontiac county, Q. (1616, 1619.)
- Ross, Renfrew county, O. (1618.)
- in calcite.—Lot 10, range VI. of North Burgess, Lanark county, O. Coll., H. G. Vennor. (1614.)
- North Burgess, Lanark county, O.—Coll., H. G. Vennor. (1615.)
- Bedford, Frontenac county, O.—Presented by W. J. Morris. (1579.)
- Island D, Lake Clear, Sebastopol, Renfrew county, O.—Presented by J. G. Miller, 1882. (1720.)

#### 4.-Phosphates, etc.-Continued.

Apatite.—Turner's Island, Lake Clear, Sebastopol, Renfrew county, O.— Table-case Presented by J. G. Miller, 1882. (4606.)

Lot 31, range X. of Sebastopol, Renfrew county, O.—Coll., C. W. Continued. Willimott, 1883. (4610, 4829.)

Lot 32, range XII. of Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1883. (1718, 1719, 4528, 4835.)

Lazulite.—Lake Mistassini region, Q.—Coll., J. Richardson, 1870. (5989.)

Vivianite.—Côte St. Charles, Vaudreuil, Vaudreuil county, Q. (1613.)

— The "Ramparts," Porcupine River, Yukon district, N.W.T.—
Presented by — Firth, 1891. (5987.)

Nitre.—Big Bar, Fraser River, B.C.—Presented by A. Cowan, 1884. (4942.)

#### 5 .- Borates, uranates.

**Howlite.**—Newport quarry, Newport, Hants county, N.S.—Coll., H. P. Brumell, 1892. (517.→

— in gypsum.—Windsor, Hants county, N.S.—Coll., H. How, 1868. (1620.)

Ulexite.—Newport, Hants county, N.S.—Coll., H. How, 1868. (1621.)

Uraninite, with gummite.—Lot 31, range I. of Villeneuve, Ottawa county, Q. Table-case (5493.)

# 6 .- Sulphates, [chromates, tellurates.]

Barite.—Mabou Mines, Inverness county, N.S. (1627.)

- Lot —, range IV. of Ramsay, Lanark county, O.—Presented by W.
  H. Wylie, 1884. (4615.)
- Five Islands, Colchester county, N.S.—Coll., S. Barlow, 1875. (1622.)
- Lot 7, range X. of Hull, Ottawa county, Q. (1629.)
- Lot 4, range VI. of North Burgess, Lanark county, O.—Coll., C.
   W. Willimott, 1882. (1286.)
- Iron Island, Lake Nipissing, O. (1625.)
  - Dog Lake, Storrington, Frontenac county, O. (1626.)
- McKellar's Island, Lake Superior, district of Thunder Bay, O.—
   Coll., E. D. Ingall, 1886. (5359.)
- (the Michel Lévyte of A. Lacroix).—Near Perkins' Mill, lot 12, range XII. of Templeton, Ottawa county, Q. (5992.).

Celestite.—Lot 8, range I. of Lansdowne, Leeds county, O. (1630.)

- Kingston, Frontenac county, O. (1631.)
  - Lot 7, range X. of Bagot, Renfrew county, O.—Presented by Hiram Robinson, 1885. (1769.)
- in dolomite.—Forks of the Credit, Caledon, Peel county, O.- Presented by Prof. E. J. Chapman. (1716.)
- --- Loc. (?) (1634.)

Anhydrite.—Hillsborough, Albert county, N.B.—Coll., C. W. Willimott. (1624, 1635.)

— Wentworth, Hants county, N.S.—Coll., C. W. Willimott, 1883. (4616.)

Gypsum.—North Shore, St. Ann's Bay, Cape Breton county, N.S.—Coll., H. Fletcher. (1641.)

# 6 .- Sulphates, etc .- Continued.

Table-case 67.—
Continued.

Gypsum.—Hillsborough, Albert county, N.B.—Coll., C. W. Willimott, 1883.

Mount Healy, Haldimand county, O. --Coll., T. C. Weston, 1875.

- (1714.)

   fibrous.—Springhill, Cumberland county, N.S.—Coll., S. Barlow,
- 1875. (1643.)

   fibrous.—Blomidon, King's county, N.S.—Coll., R. W. Ells, 1876. (1644.)
- fibrous.—Paris, Brant county, O.—Presented by Wm. Coleman, 1875. (1645.)
- stellar.—Windsor, Hants county, N.S. (1640.)
- var. selenite.—Springhill, Cumberland county, N.S.—Coll., S. Barlow, 1875. (1636.)
- var. selenite.—Niagara Falls, Welland county, O.—Coll., R. Bell, 1859. (1638.)
  - var. selenite.—Oxford, River Philip, Cumberland county, N.S. (1639.)
- var. selenite.—Near Lake St. Martin, township 32, range VIII.
   west of the principal meridian, Manitoba.—Coll., J. B.
   Tyrrell, 1888. (5537.)
- var. selenite.—South Saskatchewan River, at mouth of Swift Current Creek, district of Assiniboia, N.W.T.—Coll., T. C. Weston. (1637.)
- var. selenite.—Four miles north of Irvine, district of Assiniboia,
   N.W.T.—Coll., T. C. Weston, 1888. (6520.)
- var. selenite.—Pembina Mountain, Manitoba.—Coll., G. M. Dawson, 1873. (1656.)
- var. selenite.—Pyramid Valley, district of Assiniboia, N.W.T.—
   Coll., G. M. Dawson, 1873. (1715.)

Epsomite.—Ancaster, Brant county, O. (1646.)

Morenosite.—Wallace mine, about one mile west of the mouth of Whitefish River, district of Algoma, O. (1647.)

Melanterite.—Four miles west of Sudbury junction, C.P.R., district of Algoma, O.—Coll., H. P. Brumell, 1884. (4836.)

Halotrichite.—Gowrie Mines, Cape Breton county, N.S. (1648.)

- with melanterite.—Gowrie Mines, Cape Breton county, N.S. (1649.)
   Alunogen.—Scotia n.ine, Maccan, Cumberland county, N.S.—Coll., S. Barlow, 1876. (1650.)
  - Mouth of Fountain Creek, Fraser River, B.C.—Coll., G. M. Dawson, 1889. (1852.)
  - From the vicinity of Spatsum, C.P.R., B.C. (1433.)

Uraconite on magnetite.—Seymour ore bed, lot 11, range V. of Madoc, Hastings county, O. (1651.)

#### 7.-Tungstates, [molybdates].

Scheelite.--Lot 1, range VII. of Marlow, Beauce county, Q.—Coll., A. Webster, 1881. (5983.)

Lot 1, range VII. of Marlow, Beauce county, Q.—Coll., W. F. Ferrier, 1891. (1462.)

#### VIII.-HYDROCARBON COMPOUNDS.

Mineral resin.—Near Shaw's mill, north side of Gaspé Basin, Gaspé county, Q. (1701.)

Table-case

- From a coal seam on the Middle Fork of the Old Man River, Rocky Mountains, district of Alberta, N.W.T.—Presented by L. O. Garnett, 1885. (5139.)
- Hat Creek, near Marble Cañon, B.C.--Coll., G. M. Dawson, 1877. (1689.)
- (Chemawinite).—West side of Cedar Lake, district of Saskatchewan, N.W.T.—Presented by W. Clark, 1890. (5382.)
- (Chemawinite).—Cedar Lake, district of Saskatchewan, N.W.T.— Coll., J. B. Tyrrell, 1890. (6501.)

Altered petroleum.—From the "gum beds," Enniskillen, Lambton county, O. (5541.)

Maltha or mineral tar.—Athabasca River, twelve miles below its confluence with the Little Red River, N.W.T.—Coll., A. S. Cochrane, 1881. (5542.)

Bitumen.—Barton, Wentworth county, O.—Coll., Col. C. C. Grant. (1704.)
Bituminous Sand-rock.—Athabasca River, about six miles south of Beaver Lake, N.W.T.—Coll., A. S. Cochrane, 1881. (1713.)

Anthraxolite.—Island of Orleans, River St Lawrence, Q. (1702.)

Black River, St. Giles, Lotbinière county, Q. (1703.)

— Region of Lake Mistassini, Q.—Coll., J. A. Leitch, 1871. (5982.)

Albertite.—Albert Mines, Albert county, N.B.—Coll., R. W. Ells, 1876. (1706, 1903.)

Mineral charcoal on lignite.—North bank of the South Saskatchewan River, seven miles west of Medicine Hat, district of Assiniboia, N.W.T. (5546.)

Lignite.—Coal River, below Long Portage, Missinaibi River, O.—Coll., R. Bell, 1877. (1711.)

Souris River—one mile west of La Roche Pércée, at the junction of Short Creek and Souris River—district of Assiniboia, N.W.T.
 —Coll., A. R. C. Selwyn, 1878. (1709.)

Lignitic coal.—Belly River—from main seam at "Coal Banks,"—district of Alberta, N.W.T.—Coll., T. C. Weston, 1883. (1721.)

Coal.—Sydney, Cape Breton county, N.S. (1710.)

 Mill Creek—four miles above the mill—Old Man River, district of Alberta, N.W.T.—Coll., G. M. Dawson, 1881. (1722.)

Cannel coal.—Cape Morien (South Head), Cape Breton county, N.S.—Coll., C. Robb, 1872. (6530.)

Semi-anthracite.—Cascade River, Bow River Pass, Rocky Mountains, district of Alberta, N.W.T.—Coll., A. R. C. Selwyn, 1883. (1712.)

Anthracite.—Cowgitz, Skidegate Inlet, Queen Charlotte Islands, B.C.—Coll., J. Richardson, 1872. (1605.)

The following are shown in upright table-cases 37-44 and separate table-cases A, B, C, D, E and F. They are supplemental to the systematic collection proper, but not in the sense of illustrating any

species not already shown in that collection. They consist for the most part of large specimens some of which show the mineral to greater advantage than the smaller specimens in the flat table cases, whilst others consist of groups of crystals or masses of interesting mineral associations.

#### Native Elements.

Unright table-case Graphite.—Lot 3, range II. of Grenville, Argenteuil county, Q.—Coll., R. Bell, 1856. (588.)

#### Sulphides.

Cinnabar.-" Rosebush" claim, near the mouth of Copper Creek, Kamloops Lake, B.C.—Coll., E. D. Ingall, 1892. (5530.)

Millerite, in calcite.—Orford nickel mine, lot 6, range XII. of Orford, Sherbrooke county, Q.—Coll., C. W. Willimott. 1882. (5528.)

Pyrite.—Emerald mine, lot 19, range XII. of Buckingham, Ottawa county, Q.— Coll., C. W. Willimott, 1891. (336.)

#### Oxides.

Quartz, amethystine. - Amethyst Harbour, Thunder Bay, Lake Superior, O. -Coll., R. Bell, 1875. (4543, 5524.)

with calcite.—Lake Superior, O. (2520.)

Cacholong, with agate.—Cape Blomidon, King's county, N.S.—Coll., C. W. Willimott, 1883. (4548.)

Jasper. - Mamainse (Namainse), Lake Superior, district of Algoma, O. (4653.) Limonite.—Martin's Brook, Acadia Mines, Londonderry, Colchester county, N.S.—Coll., C. W. Willimott, 1883. (4544.)

var. bog iron ore.—Memphremagog mine, Bolton, Brome county, Q.—Coll., C. W. Willimott, 1892. (4611.)

#### Carbonates.

table-case 38.

- Calcite.—Lot 7, range I. of Wakefield, Ottawa county, Q,—Coll., C. W. Willimott, 1884. (4855.)
  - var. Iceland spar, in mountain cork.—Emerald mine, lot 19, range XII. of Buckingham, Ottawa county, Q. (2560.)
  - Montreal, Hochelaga county, Q.—Coll., B. J. Harrington. (4618.)
  - var. nail-head spar.-Montreal, Hochelaga county, Q.-Coll., C. W. Willimott, 1878. (4617.)
  - var. nail-head spar. Montreal, Hochelaga county, Q. Coll., B. J. Harrington. (5536.) var. nail-head spar.—Teny Cape, Hants county, N.S.—Coll., C. W.
  - Willimott, 1883. (4623.)
  - var. dog-tooth spar.—Five Islands, Colchester county, N.S.—Coll., S. Barlow, 1875. (2527.)
  - var. Iceland spar.—Galway, Peterborough county, O. (2536.)
- Dawsonite on felspathic trap. Near the western end of McGill College, Montreal, Hochelaga county, Q.—Coll., B. J. Harrington, 1878. (2549.)

#### Silicates, anhydrous.

Orthoclase.—Lot 32, range XII. of Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1884. (911, 4826.) Upright table-case with pyroxene.—Lot 32, range XII. of Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1891. (553.) 39. with pyroxene and apatite.—Lot 32, range XII. of Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1884. (4828.) Amazon stone.—South half of lot 6, range XII. of Hull, Ottawa county, Q.— Coll., C. W. Willimott, 1883. (4574.) Lot 31, range X. of Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1884. (4834.) Albite, with tourmaline, muscovite, quartz and spessartite.—Villeneuve mica mine, lot 31, range I. of Villeneuve, Ottawa county, Q.—Coll., C. W. Willimott, 1887. (5465.) Oligoclase.—Lot 8, range III. of Dryden, district of Nipissing, O.—Coll., A. E. Barlow, 1891. (5338.) Pyroxene, var. diopside.—Orford nickel mine, lot 6, range XII. of Orford, Sherbrooke county, Q.—Coll., A. R. C. Selwyn, 1879. (5531.) Lot 18, range II. of Wakefield, Ottawa county, Q.—Presented by Isaac Moore, 1883. (5034.) with phlogopite.— Lot 18, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882. (4552.) Lot 18, range II. of Wakefield, Ottawa county, Q.-Coll., C. W. Upright Willimott, 1883. (4551.) table-case twin crystal.—Lot 18, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1890. (616.) 40 in calcite.—Portland, Ottawa county, Q. (2548.) with apatite.—Lot 7, range IX. of Ross, Renfrew county, O.—Coll., C. W. Willimott, 1883. (3711.) var. diopside.—Calumet Island, Pontiac county, Q. (2513.) var. diopside.—Ragged Chute, Madawaska River, Blythfield, Renfrew county, O.—Coll., A. Murray, 1859. (4661.) with orthoclase and apatite.-Lot 32, range XII. of Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1884. (4860.) — var. diallage.—Grosse Roche, Chaudière River, Beauce county, Q.—Coll., A. Webster, 1879. (4550.)

Hornblende.—High Falls, Madawaska River, Blythfield, Renfrew county, O.—Coll., J. Richardson. (4553.) var. tremolite.—Lot 24, range IV. of Ross, Renfrew county, O.—Coll., C. W. Willimott, 1883. (615, 2528.) Sodalite.—Ice River, branch of the Beaver-foot River, south of Kicking Horse Pass, Rocky Mountains, B.C. (5348.) Upright table-case Garnet, var. grossularite.—Lot 6, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1883. (5466, 5525.) 41. chromiferous, with pyroxene.—Lot 6, range XII. of Orford, Sherbrooke county, Q.—Coll., C. W. Willimott, 1887. (543.) var. almandite.—Chegoggin Point, Yarmouth, Yarmouth county, N.S.—Coll., L. W. Bailey, 1891. (4729.) Scapolite.—Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878. (2526.)with wilsonite.—Lot 23, range XIII. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878. (2521.)
with wilsonite, pyroxene and apatite.—Lot 23, range XIII. of Templeton, Ottawa county, Q.—Presented by J. G. Miller,

1882. (4577.)

#### Silicates, anhydrous-Continued.

Upright table-case 41.—

Scapolite.—Island "D," Lake Clear, Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1884. (5523.)

Cyanite.—Lot 9, range III. of Dryden, district of Nipissing, O.—Coll., A. E.

Barlow, 1890. (5255, 6546.)

Upright table-case 42.

Prehnite.—Dalhousie, Restigouche county, N.B.—Coll., R. W. Ells, 1881.

Tourmaline, in feetid calcite.—Lot 10, range XI. of Chatham, Argenteuil county, Q.—Coll. C. W. Willimott, 1878. (2541.)

— in quartz.—Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1890. (5693.)

#### Silicates, hydrous.

- Apophyllite, with stilbite.—Blomidon, King's county, N.S.—Coll., C. W. Willimott, 1883. (611.)
- Stilbite.—Scot's Bay, King's county, N.S.—Coll., C. W. Willimott, 1883. (4590.)
  - with calcite.—Partridge Island, Cumberland county, N.S.—Coll.,
     R. W. Ells, 1876. (5529.)
  - Cape d'Or, Cumberland county, N.S.—Coll., R. W. Ells, 1876. (4582.)
  - West side of Fog Whistle, Cape d'Or, Cumberland county, N.S.—
     Coll., C. W. Willimott, 1888. (5646, 5682.)
  - Digby Neck, Digby county, N.S.—Coll., L. W. Bailey, 1892.

Analcite.—West side of Horseshoe Cove, Cumberland county, N.S.—Coll., C. W. Willimott, 1888. (5681.)

with natrolite.—Two Islands, Cumberland county, N.S.—Coll., C.
 W. Willimott, 1892. (6547.)

Natrolite.—Cape Split, King's county, N.S.—Coll., R. W. Ells, 1876. (531.)

— Stronach Mountain, King's county, N.S.—Coll., C. W. Willimott, 1883. (4598.)

Biotite.—West half of lot 13, range VI. of Ross, Renfrew county, O.—Coll., C. W. Willimott, 1879. (2532.)

Phlogopite.—Augmentation of Grenville, Argenteuil county, Q. (2544.)

- Lot 30, range V. of Portland, Ottawa county, Q.—Coll., C. W. Willimott, 1891. (6548.)
- Lot 9, range IX. of Templeton, Ottawa county, Q.—Coll., A. R. C. Selwyn, 1882. (608.)
- Lot 15, range VIII. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878. (2531.)
- with plant inclusion.—The growth, a root, most probably a growing spruce (Picea alba)—was found embedded in a crystal of mica which measured 20" x 21".—North half of lot 10, range V. of Hull, Ottawa county, Q.—Presented by E. B. Haycock, 1891. (5981.)
- with inclusion of albite, and intimately associated with this, crystals
   of apatite, pyrite and garnet—Lot 10, range XII. of Hull,
   Ottawa county, Q.—Presented by T. F. Nellis, 1891. (614.)
- South half of lot 6, range I. of Wakefield, Ottawa county, Q.—Coll.,
   C. W. Willimott, 1883. (4925.)
- Lot 18, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1884. (5534.)

Upright table-case

#### Silicates, hydrous-Continued.

Serpentine, fibrous (var. chrysotile) and massive.—Lot 11, range VII. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878. (2514.)

Upright table-case 43 -

var. picrolite. - Lot 6, range XV. of Shipton, Richmond county, O. -Coll., J. Richardson. (4604.)

Continued.

Talc.—Lots 8 and 9, range V. of Grimsthorpe, Hastings county, O.—Presented by A. Moon, 1892. (5532.)

Pyrallolite.—Lot 8, range VI. of Ramsay, Lanark county, O.—Coll., C. W. Willimott, 1887. (5489.)

Upright table-case 44.

#### Titano-silicates

Titanite.—Lake Clear, Sebastopol, Renfrew county, O.—Presented by J. G. Miller, 1882. (5526.)

with zircon.—Lot 31, range X. of Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1883. (4538.)

#### Phosphates,

- Apatite.—Lot 18, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1884. (3713, 4843.)
  - with inclusion of calcite.—Lot 7, range IX, of Ross, Renfrew county. O.—Coll., C. W. Willimott, 1883. (4607.)
  - Lake Clear, Sebastopol, Renfrew county, O.—Presented by J. G. Miller, 1882. (3710.)
  - in calcite. Island "D," Lake Clear, Sebastopol, Renfrew county, O. Coll., C. W. Willimott, 1884. (4609.)
  - in calcite.—Lot 32, range XII. of Sebastopol, Renfrew county, O.— Coll., C. W. Willimott, 1891. (2554.)
  - Rathwell lot, Bromley, Renfrew county, O.—Coll., C. W. Willimott, 1891. (6549.)

#### Sulphates.

Barite.—Five Islands, Colchester county, N.S.—Coll., S. Barlow, 1875. (2478.) Celestite in dolomite. - Forks of the Credit, Caledon, Peel county, O .- Coll., C. W. Willimott, 1884. (4856.)

Gypsum.—Hillsborough, Albert county, N.B.—Presented by J. T. Tomkins. (4612.)

- massive and fibrous.—Black Rock, Colchester county, N.S., opposite Maitland.—Coll., C. W. Willimott, 1884. (4613.)
- var. selenite.—Cape Blomidon, King's county, N.S.—Coll., C. W. Willimott, 1883. (4614.)
- var. selenite-Hamilton Mountain, Barton, Wentworth county, O. —Coll., C. W. Willimott, 1884. (4857.)

#### Tungstates.

Scheelite,-Lot 1, range VII. of Marlow, Beauce county, Q.-Coll., W. F. Ferrier, 1891. (2572.)

# Separate table-cases.

#### CASE A.

Pyroxene, hornblende, apatite, calcite and biotite.—Lot 32, range XII. of Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1883.—Laurentian, A. (3510.)

#### CASE B.

Mountain cork—a kind of asbestus in which the fibres are so interlaced as to form a tough light mass.—Emerald mine, lot 19, range XII. of Buckingham, Ottawacounty, Q.—This specimen—presented by F. W. Warwick, 1888—weighs 5 lbs. 10 ozs.—Laurentian, A. (5553.)

#### CASE C.

Calcite (dog-tooth spar) with iron-pyrites.—Silver Islet, Lake Superior, district of Thunder Bay, O.—Presented by Captain Trethewy, 1882.—Cambrian, C 1. (4947.)

#### CASE D.

Albite, tourmaline, muscovite and quartz.—Villeneuve mica mine, lot 31, range
I. of Villeneuve, Ottawa county, Q.—Presented by L. H.
Shirley, 1886.—Laurentian, A. (5281.)

### CASE E.

Biotite—broken off a mass which weighed about 340 lbs.—Lot 32, range XII. of Sebastopol, Renfrew county. O.—Coll., C. W. Willimott, 1833.—Laurentian, A. (4849.)

# CASE F.

Amethyst, associated with fluorite coated with iron-pyrites.—McKenzie River,
Thunder Bay, Lake Superior, O.—Presented by R. Blackwood and Geo. McVicker, 1875.—Huronian, B. (5257.)

# B.—COLLECTION OF ECONOMIC MINERALS AND

This, to which has been assigned a far larger space than that occupied by either of the other two related collections (i. e. the systematic collection of minerals and stratigraphical collection of rocks) in this section of the Museum, occupies the upright wall and wing-cases 1–28, the table-cases 34–48 and 69–71, also the upright table-cases 25–36.

The series of polished slabs of marbles are affixed to the ends of the wing-cases and in the recesses of the windows. The large specimens of minerals and rocks occupy brackets at the end and foot of the wing-cases, and other large objects,—such as columns and the like,—occupy a position in some of the recesses formed by the wing-cases.

Note.—The specimens illustrating the distribution of iron-ores have been arranged in a combined systematic and geographic manner, thereby admitting of a ready reference to the ores from any particular province. This reference is still further facilitated by placing the specimens from the different provinces upon variously coloured card-board covering the bottom of the containing tray. The Maritime provinces being represented by greenish-blue, the province of Quebee by purplish-brown, that of Ontario by dark bluish-grey, the province of Manitoba and the North-west Territory by olive-green and the province of British Columbia by salmon-red.

The following is a synopsis of the arrangement of this collection:

#### I.-METALS AND THEIR ORES.

Antimony ores: bismuth ores: cobalt ores: copper ores: gold ores: iron ores: lead ores: mercury ores: nickel ores: platinum: silver ores: zinc ores.

# II.—MINERALS APPLICABLE TO CERTAIN CHEMICAL MANUFACTURES.

Apatite (phosphate of lime): arsenopyrite (sulph-arsenide of iron): celestite (sulphate of strontia): chromic iron ore (chromate of iron): iron pyrites (bisulphide of iron): magnesite (carbonate of magnesia): manganese ores (oxides of manganese): molybdenite (sulphide of molybdenum): scheelite (tungstate of lime).

# III.--MINERALS USED IN THE PRODUCTION OF LIGHT AND HEAT.

Albertite: anthracite: bituminous shale: coal: lignite: mineral tar: oil shale: peat: petroleum.

31

# IV.-MINERALS (AND MATERIAL MANUFACTURED FROM CERTAIN OF THE SAME) APPLICABLE TO COMMON AND DECORATIVE CONSTRUCTION.

Brick clays, bricks and drain-tiles: dolomites; gneisses: granites: gypsum, anhydrite and plaster-of-Paris: labradorite rock: limestones: marbles, limestone and serpentine: raw cement stones and hydraulic limes: raw limestones and common limes: roofing slates: sandstones: syenites.

# V.-MINERALS EMPLOYED AS PIGMENTS.

Barytes: iron ochres: steatite.

# VI.—REFRACTORY (FIRE RESISTING) MINERALS.

Asbestus: fire-clay: graphite: mica: potstone or compact chlorite; sandstone, refractory: soapstone or steatite.

# VII.—BRINES, SALT, AND MINERAL WATERS.

Brines: mineral waters: salt, common.

# VIII. MINERALS APPLICABLE TO THE FINE ARTS AND JEWELLERY.

Actinolite in quartz (Thétis hair-stone): agates: alabaster: albite: amethyst: asteriated quartz: aventurine felspar: carnelian: epidote: garnet; heliotrope: jasper: jasper conglomerate: labradorite: lithographic stone: microline: (amazonstone): nephrite: obsidian: peristerite: perthite: porphyries: retinite: scapolite: serpentine; sodalite: thomsonite: tourmaline.

# IX. MINERALS EMPLOYED, WITH OR WITHOUT PREVIOUS PREPARATION, AS FERTILIZERS.

Apatite; gypsum: marls.

# X. MINERALS EMPLOYED FOR GRINDING AND POLISHING.

Infusorial earth or earthy tripolite: marl, arenaceous and calcareous: mica-slates: sandstones: silicious sand and silt.

# XI.-MINERALS OF MISCELLANEOUS APPLICATION.

Felspar, suitable for the manufacture of porcelain: moulding sands: quartz, quartz sand and sandstone, suitable for glass making: soapclay employed as a detergent.

# I.-METALS AND THEIR ORES.

# GOLD ORES.

# Gold-bearing Quartz.

Auriferous	s quartz.—Lawrencetown, Halifax county, N.S.—Coll., A. R. C. Selwyn, 1870.—Cambrian, C 1. (378.)	Upright wall-case
_	(quartz with mispickel).—Lawrencetown, Halifax county, N.S.—Coll., A. R. C. Selwyn, 1870.—Cambrian, C 1. (421.)	1.
_	(quartz with mispickel.—Belt lead, Albion mine, Montagu, Halifax county, N.S.—Presented by Mr. Lawson, 1870.— Cambrian, C 1. (384.)	
_	Lydia and Sarah lead, Montagu mine, Montagu, Halifax county, N.S.—Coll., A. R. C. Selwyn, 1870.—Cambrian, C 1. (385.)	
_	Rose lead, Montagu mine, Montagu, Halifax county, N.S.—Presented by W. J. Smart, 1890.—Cambrian, C 1. (2474.)	
*******	Montagu, Halifax county, N.S.—Cambrian, C 1. (437.)	
_	Jennings' Diggings, Musquodoboit, Halifax county, N.S.—Presented by A. Michel, 1869.—Cambrian, C 1. (386.)	
	Nigger lead (from middle of vein—70 ft).—Tangier, Halifax county, N.S.—Cambrian, C 1. (387.)	
_	Nigger lead (hanging wall), Tangier, Halifax county, N.S.—Cambrian, C 1. (428.)	
	Leary lead (hanging wall), Tangier, Halifax county, N.S.—Presented by Mr. Crossland, 1870.—Cambrian, C 1. (392.)	
*****	Baker's mine (200 feet from surface), Oldham, Halifax county, N.S.—Cambrian, C 1. (422.)	
	Oldham, Halifax county, N.S.—Cambrian, C 1. (435.)	
_	Irving belt, Mooseland, Halifax county, N.S.—Cambrian, C 1. (473.)	
	Waverley, Halifax county, N.S.—Cambrian, C 1. (425.)	
	From cross vein, Waverley, Halifax county, N.S.—Cambrian, C 1. (471.)	
_	Killog mine, Sheet Harbour, Halifax county, N.S.—Presented by George Stewart, 1888.—Cambrian, C I. (5749.)	
_	Upper Stewiacke, Colchester county, N.S.—Coll., A. R. C. Selwyn, 1870.—Cambrian, C 1. (381.)	
	Brook lode, Renfrew, Hants county, N.S.—Cambrian, C1. (382.)	
	Central Rawdon gold mine, Rawdon, Hants county, N.S.—Presented by Gould Northup, 1890.—Cambrian, C 1. (2461).	
NATION AND ADDRESS OF THE PARTY.	Wine Harbour, Guysborough county, N.S.—Coll., A. R. C. Selwyn, 1870.—Cambrian, C 1. (423.)	
_	Goldenville, Sherbrooke, Guysborough county, N.S.—Cambrian,	

Crows Nest mine, St. Mary's, Guysborough county, N.S.—Presented by Alex. Mackenzie, 1887.—Cambrian, C 1. (5362.)

#### GOLD OBES-Continued.

# Gold-bearing Quartz-Continued.

Upright wall-case 1.-Continued. Auriferous quartz-Gold River, Lunenburg county, N.S.-Cambrian, C1.

- Yellow Jacket vein. (2470,) Caledonia Gold Field, Caledonia,
- Queen's county, N.S. Dunbrecht vein. (2471.)
- Coll., A. R.C. Selwyn, 1890. Centre vein. (2472.)
- J Cambrian, C1. Cole vein. (2473.)
- St. Giles de Beaurivage, Lotbinière county, Q.—Pre-Cambrian, B ? (372.)
- Handkerchief mine, St. Giles de Beaurivage, Lotbinière county, Q. Pre-Cambrian, B? (417.)
- St. François, seigniory of Rigaud-Vaudreuil, Beauce county, Q.—Cambrian, C. (373.)
- Devil's Rapids, Chaudière River, St. François, seigniory of Rigaud-Vaudreuil, Beauce county, Q.—Cambrian, C. (374.)
- Lot 30, range I. seigniory of Aubert-Gallion, Beauce county, Q .-Cambrian, C. (377.)
- Wollaston, Hastings county, O.—Presented by Wm. Sheppard, 1883.—Archean, A. B. (430.)
- (quartz with mispickel). -Gillen mine, lot 6, rangeVIII. of Marmora, Hastings county, O.-Coll., H. G. Vennor, 1871.-Archean, A. B. (324.)
  - (quartz with mispickel). -Gatling mine, lot 9, range VIII. of Marmora, Hastings county, O .- Coll., H. G. Vennor, 1871 .-Archean, A. B. (4823.)
- Gladstone mine, lot 17, range XI. of Marmora, Hastings county, O. -Presented by Hon. Billa Flint, 1869.—Archean, A. B. (439.)
- Lot 12, Hastings road, Tudor, trastings county, W. Sheppard, 1883.—Archean, A. B. (436.) Hastings road, Tudor, Hastings county, O .- Presented by
- Cragg's gold mine, Tudor, Hastings county, O .- Archean, A. B. (1011.)
- East half of lot 20, range I. of Belmont, Peterborough county, O.—Coll., H. P. Brumell, 1891.—Archean, A. B. (5141.)
- Victoria Cape, Jackfish Bay, opposite Slate Islands, Lake Superior, O. Coll., R. Bell, 1870.—Huronian, B. (380.)
- Partridge Lake, district of Thunder Bay, O.—Coll., R. Bell, 1870. -Huronian, B. (389.)
- Huronian mine, lot H 1, township of Moss, district of Thunder Bay, O.—Coll., R. Bell, 1870.—Huronian, B. (429.)
  - South side of Upper Lake Shebandowan, district of Thunder Bay, O.—Coll., R. Bell, 1870.—Huronian, B. (415.)
- Sultana mine, Lake of the Woods, district of Rainy River, O .-Coll., A. R. C. Selwyn, 1888.—Huronian, B. (5584.)

Snowshoe Mount, Richfield, Cariboo, B.C. (390.)

#### Gold-bearing rocks (other than quartz), also auriferous arsenopyrite and stibnite.

Auriferous conglomerate—Gay's River, Colchester county, N.S.—Presented by H. S. Poole, 1887.—Carboniferous, G. (5459.)

#### GOLD ORES-Continued.

# Gold-bearing rocks (other than quartz), also auriferous arsenopyrite and stibnite--Continued.

Auriferous veinstone. - Montagu, Halifax county, N.S. - Coll., A. R. C. Selwyn, 1870.—Cambrian, C 1. (391.)

Upright wall-case 1.---

- mispickel (arsenopyrite), —Gatling mine, lot 9, range VIII, of Marmora, Hastings county, O.—Coll., H. G. Vennor, 1871.—Archean, A. B. (412.)
- dolomite.—Lot 15, range XIV. of Leeds, Megantic county, Q.—Pre-Cambrian, B? (394.)
  antimony ore (stibnite).—Clarendon, Frontenac county, O.—Pre-
- sented by W. Sheppard, 1883.—Laurentian, A. (438.)
- felspathic rock.—Cabill's mine, Rawdon, Montcalm county, Q.—Laurentian, A. (982.)
  - gneiss .- Dorwin's mill, Rawdon, Montcalm county, O .- Laurentian A. (981.)
- rock (limestone with pyrite).—Dorwin's mill, Rawdon, Montcalm county, Q.—Laurentian, A. (980.)
- dolomite with tetrahedrite).—Lot 1, range VI. of Madoc, Hastings county, O.—Coll., H. G. Vennor, 1868. (333.)
- rock.—Richardson mine, lot 18, range V. of Madoc, Hastings county, O.—Archean, A. B. (424.)
- vein-stuff, Richardson mine, lot 18, range V. of Madoc, Hastings county, O.—Archean, A. B. (371.)

#### Specimens of native gold separated from the matrix.

Native gold.—Richardson mine, lot 18, range V. of Madoc, Hastings county, O. -(398-403.)

- Lot 15, range IV. of Madoc, Hastings county, O. (409.)
- do 16, do VI. (397.)
  - do 18. do VII. do do (406.)
- do 10, do IX. of Hungerford do (405.)do 5, do II. of Elzevir (420.)

#### Placer Gold.

- Alluvial Gold.—Gilbert River (Touffe des Pins), seigniory of Rigaud-Vaudreuil, Beauce county, Q. (986.)
  - Lot 11, concession St. Charles, north-east side of Gilbert River (15 feet below river level), seigniory of Rigaud-Vaudreuil, Beauce county, Q. (999.)
  - Lot 7, concession St. Charles, Gilbert River (96 feet below river level), seigniory of Rigaud-Vaudreuil, Beauce county, Q. (1005.)
  - Lot 14, concession De Léry, Gilbert River lead, seigniory of Rigaud-Vaudreuil, Beauce county, Q. (1000.)
  - Lot 14, concession De Léry (from gravel on clay 1 to 4 feet), seigniory of Rigaud-Vaudreuil, Beauce county, Q. (1006.)
  - Lot 17, concession De Léry (from bank 8 feet above Gilbert River), seigniory of Rigaud-Vaudreuil, Beauce county, Q. (1004.)

#### GOLD ORES-Continued.

#### Placer Gold-Continued.

Upright wall-case 1.—
Continued.

Alluvial Gold.—Devils Rapids, Chaudière River, St. François, seigniory of Rigaud-Vaudreuil, Beauce county, Q. (1002.)

 Lot 27, range I. of St. François, seigniory of Rigaud-Vaudreuil, Beauce county, Q. (1010.)

 Loubier Creek, St. François, seigniory of Rigaud-Vaudreuil, Beauce county, Q. (1008.)

 Rivière des Plantes (Guillaume), seigniory of Rigaud-Vaudreuil, Beauce county, Q. (1001.)

Lot 16, concession Chaussegros, seigniory of Rigaud-Vaudreuil, Beauce county, Q. (1009.)

 Lot 20, concession St. George, seigniory of Aubert-Gallion, Beauce county, Q. (1007.)

Jersey Point, Rivière du Loup, Beauce county, Q. (1003.)
 Specimens numbered 999 to 1010 inc., were presented by W.
 P. Lockwood.

- Chaudière River, Beauce county, Q. (395, 416, 418.)

- Chaudière River, between Gilbert River and St. François, seigniory of Rigaud-Vaudreuil, Beauce county, Q. (446.)

 Three miles up the Gilbert River (Touffe des Pins), seigniory of Rigaud-Vaudreuil, Beauce county, Q. (449.)

- Rivière des Plantes (Guillaume) seigniory of Rigaud-Vaudreuil, Beauce county, Q. (448, 453.)

 From creek below Bolduc's, seigniory of Rigaud-Vaudreuil, Beauce county, Q. (446.)

 From creek, west side of the Chaudière River, at Ste. Marie, seigniory of St. Joseph, Beauce county, Q. (447.)

- From creek, west side of the Chaudière River, half a mile below St.

Joseph Church, seigniory of St. Joseph, Beauce county, Q.

(456.)

- Rivière du Bras, Beauce county, Q. (467.)

Chaudière River, above south-east line of Fief St. Charles, seigniory of Aubert de l'Isle, Beauce county, Q. (450.)

-- Ruisseau St. Henry or Lady Fair stream, above south-east line of Fief St. Charles, Beauce county, Q. (457.)

East branch of Rivière du Bras, township of Tring, Beauce county, Q. (462.)

- Rivière du Loup, Beauce county, Q.—Presented by A. A. Humphrey. (985.)

Rivière du Loup, above Jersey line, Beauce county, Q. (445.)

- Rivière du Loup, half a mile above the Chaudière. (452.)

Famine River, township of Watford, Dorchester county, Q. (451, 984.)

- River Samson, Beauce county, Q. (455.)

-- Pozer's stream, township of Shenley, Beauce county, Q. (459.)

River Oliva, Kennebec Road range, Beauce county, Q. (463.)

Travellers' Rest River, Kennebec Road range, Beauce county, Q. (464.)

Kempt stream, Kennebec Road range, Beauce county, Q. (465.)

Rivière Grand Coudée, Kennebec Road range, Beauce county, Q. (454.)

Trout River, township of Jersey, Beauce county, Q. (468.)

Outlet of Lake Archer, Lake Etchemin, Dorchester county, Q. (458.)

#### GOLD ORES-Continued.

#### Placer Gold-Continued.

Alluvial Gold,—Bishops clearing, River St. Francis, Dudswell, Wolfe county, Q. (444.)

Upright
wall-case
1.—
Continued.

- Dudswell Road, ten miles from Sherbrooke, Sherbrooke county, Q. (460.)
- Dudswell Road, seven miles west of Sherbrooke, Sherbrooke county, Q. (461.)
- Magog River, above Sherbrooke, Sherbrooke county, Q. (983.)
- Models of nuggets from the tributaries of the Chaudière River, Beauce county, Q. (978.)
- Model of nugget from Omineca, B.C. (979.)

The following, although essentially ores of silver are, inasmuch as space could not be found for them in a more appropriate place, also shown in this case.

Silver ore.—Location 96 T, township of Gillies, district of Thunder Bay, O.— Presented by T. A. Keefer, 1888.—Cambrian, C 1. (3637.)

- Idaho Mountain, south-east side of Stump Lake, Nicola Valley, B.C. (5491.)
- Star claim, Stump Lake, Nicola Valley, B.C.—Presented by G. Henderson, 1888. (5706.)
- Joshua claim, south-east side of Stump Lake, Nicola Valley, B.C.

  —Presented by the Nicola Milling and Mining Co., Wm.
  Craib, Mgr. (5707.)
- Tubal Cain claim, south-east side of Stump Lake, Nicola Valley, B.C.—Presented by the Nicola Milling and Mining Co., Wm. Craib, Mgr. (5708.)
- King William claim, south-east side of Stump Lake, Nicola Valley, B.C.—Presented by the Nicola Milling and Mining Co., Wm. Craib, Mgr. (5709.)

#### GOLD AND SILVER ORES.

# Gold and Silver Ores from the Province of British Columbia.

### 1.—East Kootanie District.

Vitreous copper ore and copper pyrites in quartz—argentiferous.—"Copper Bonanza" claim, Wet-feet Creek, Otter-tail Creek, near Otter-tail Station, C.P.R.—Coll., R. G. McConnell, 1886. (5352.)

Table-case 47.

- Galena, argentiferous.—" Louis" claim, about one and three-quarter miles east of Otter-tail station, C.P.R.—Coll., R. G. McConnell, 1886. (5353.)
  - zinc blende and copper pyrites—argentiferous.—"Pioneer" claim,
     Otter-tail Creek, near Otter-tail station, C.P.R.—Coll., R.
     G. McConnell, 1886. (5354.)
  - argentiferous.—"Carleton" claim, Mount Stephen (Tunnel Mountain).—Coll., R. G. McConnell, 1886. (5355.)
  - argentiferous.—"Cornucopia" claim, Mount Stephen (Tunnel Mountain).—Coll., R. G. McConnell, 1886. (5356.)

# From the Province of British Columbia—Continued.

# 1.—East Kootanie District—Continued.

Table-case Continued

Galena, argentiferous. - "Monarch" claim, Mount Stephen (Tunnel Moun-

tain).—Coll., R. G. McConnell, 1886. (5357.)
argentiferous.—"Alpha" claim, Mount Field.—Coll., R. G. McConnell, 1886. (5361.)

argentiferous.—Vicinity of Field Station, C.P.R. (5345.)

# A.—McMurdo Mining Area.

Galena, argentiferous.—" Crescent" claim. (5809.)

"Syenite Bluff" claim, Deception Creek. (5810.)

"Black Horse" do do . (5812.) Copper Creek. (5813.)

"Jumbo" do Toby Creek, (5814.)

#### 2.—West Kootanie District.

# A.—Toad Mountain mining camp and vicinity.

Purple copper ore, copper pyrites and grey copper (tetrahedrite)—argentiferous. "Silver King" claim.—Coll., G. M. Dawson, 1889 (5815.)

argentiferous.—" Silver King" claim.—Coll., G. M. Dawson, 1889. (5816.)

Copper pyrites and grey copper (tetrahedrite)—argentiferous.—"Kootanie Bonanza" claim.—Coll., G. M. Dawson, 1889. (5817.)

and grey copper (tetrahedrite) in quartz-argentiferous. - "Dandy" claim.—Coll., G. M. Dawson, 1889. (5818.)

Galena, zinc blende and copper pyrites in quartz—argentiferous.—" Dandy" claim.—Coll., G. M. Dawason, 1889. (5819.)

Copper pyrites, iron pyrites and grey copper (tetrahedrite) in quartz-argentiferous.—"Tough-nut" claim.—Coll., G. M. Dawson, 1889. (5820.)

Iron pyrites, copper pyrites, grey copper (tetrahedrite) and zinc blende—argentiferous.—" Tough-nut" claim.—Coll., G. M. Dawson, 1889.

Grey copper (tetrahedrite) with copper pyrites—argentiferous.—"Grizzly" claim.—Coll., G. M. Dawson, 1889. (5822.)

Galena and iron pyrites in quartz-argentiferous.-" Evening Tide" claim.-Coll., G. M. Dawson, 1889. (5823.)

Galena, copper pyrites, iron pyrites, zinc blende and grey copper (tetrahedrite)—argentiferous.—"Iroquois" claim.—Coll., G. M. Dawson, 1889. (5824.)

Copper pyrites and grey copper (tetrahedrite)—argentiferous.—"Iroquois" claim.—Coll., G. M. Dawson, 1889. (5825.)

Grey copper (tetrahedrite), copper pyrites and iron pyrites—argentiferous.—
"Iroquois" claim.—Coll., G. M. Dawson, 1889. (5826.)

Ore from the Cottonwood mine.—Worked for gold.—Coll., G. M. Dawson, 1889. (5827-32.)

- (1.) Specimen showing general character of much of the rock. (5827.)
- (2.) Decomposed schist. (5828.)
- (3.) Decomposed vein matter. (5829.)
- (4.) Decomposed vein matter carrying native gold. (5830.)
- (5.) Undecomposed kernel in ore mass. (5831.)
- (6.) Specimen of a swell vein some parts of which assayed \$1,300 per ton. (5832.)

#### From the Province of British Columbia—Continued.

# 2.—West Kootanie District—Continued.

A.—Toad Mountain mining camp and vicinity—Continued.

Galena-argentiferous. Surface rock.-" Umatilla" and "Uncle Sam" claims. Labeau Mines, east side of Cottonwood-Smith Creek, about two miles and a-half from Nelson. (5833.)

Table-case 47.-Continued.

- Galena, zinc blende and copper pyrites—argentiferous.—" Umatilla" and "Uncle Sam" claims, Cottonwood-Smith Creek.—Coll., G. M. Dawson, 1889. (5834.)
  - and zinc blende—argentiferous.—"Apex" claim, Labeau Mines, Cottonwood-Smith Creek.—Coll., G. M. Dawson, 1889.
  - argentiferous.—" Apex " claim, Labeau Mines, Cottonwood-Smith Creek.—Coll., G. M. Dawson, 1889. (5836.)
- Iron pyrites and copper pyrites in quartz—auriferous.—"Poorman" claim, about four miles west of Nelson. (5837.)

# B.—Hot Springs (or Ainsworth) mining camp.

- Galena—argentiferous.—"Little Donald" claim.—Coll., G. M. Dawson, 1889. (5838.)
  - argentiferous.—"Krao" claim.—Coll., G. M. Dawson, 1889. (5839.) "Sunrise" do do (5840.)

Native silver.—" Number One" claim.—Coll., G. M. Dawson, 1889. Galena, zinc blende and iron pyrites—argentiferous.—" Number One" claim.—

Coll., G. M. Dawson, 1889. (5842.)

— and iron pyrites with native silver.—"Number One" claim.—Coll.,

G. M. Dawson, 1889. (5843.)

- zinc blende and iron pyrites—argentiferous.—''Number One'' claim.—Coll., G. M. Dawson, 1889. (5844.)
- argentiferous.-" United" claim.-Coll., G. M. Dawson, 1889. Table-case (5845.)
- argentiferous.—"Black Chief" claim.—Coll., G. M. Dawson, 1889. (5846.)
- zinc blende and iron pyrites in calcite—argentiferous.—"Sweden" claim.—Coll., G. M. Dawson, 1889. (5847.)
- argentiferous.—"Spokane" claim.—Coll., G. M. Dawson, 1889. (5848.)
- and copper pyrites—argentiferous—" Jeff Davis" claim.—Coll., G. M. Dawson, 1889. (5849.)

Weathered quartz rock.—"Sky Line" claim.—Coll., G. M. Dawson, 1889. (5850.)

Galena—argentiferous.—"Della" claim.—Coll., G. M. Dawson, 1889. (5851.) Galena with iron and copper pyrites—argentiferous.—"Tiger" claim.—Coll., G. M. Dawson, 1889. (5852.)

Galena, in calcite-argentiferous.-"Dictator" claim.-Coll., E. D. Ingall, 1892. (42.)

- with zinc blende in quartz—argentiferous.—"Dictator" claim.— Coll., E. D. Ingall, 1892. (43.)
- with some iron pyrites in quartz—argentiferous.—"Highlander" claim.—Coll., E. D. Ingall, 1892. (44.)
- with some zinc blende, in dolomitic limestone—argentiferous.— "Neosho" claim.—Coll., E. D. Ingall, 1892. (45.)

#### From the Province of British Columbia—Continued.

### 2.—West Kootanie District—Continued.

B.—Hot Springs (or Ainsworth) mining Camp—Continued.

Table-case 48.— 2inc blende with native silver, in dolomitic limestone.—" Neosho" claim.—Coll., E. D. Ingall, 1892. (46.)

Weathered rock.—" Neosho" claim.—Coll., E. D. Ingall, 1892. (47.)

# C.—Hendryx mining camp.

Galena, zinc blende, magnetic pyrites and copper pyrites—argentiferous.—
"Blue Bell" claim.—Coll., G. M. Dawson, 1889. (5853).

Zinc blende.-" Blue Bell" claim.-Coll., G. M. Dawson, 1889. (5854.)

Galena—argentiferous.—"Blue Bell" claim.—Coll., G. M. Dawson, 1889.

Quartz, with a little galena and alteration product of same.—"Blue Bell" claim.—Coll., G. M. Dawson, 1889. (5856.)

Galena, zinc blende and iron pyrites—argentiferous.—"Kootanie Chief" claim.
—Coll., G. M. Dawson, 1889. (5857.)

Galena, zinc blende, magnetic pyrites and copper pyrites—argentiferous.—
"Kootanie Chief" claim.—Coll., G. M. Dawson, 1889.
(5858.)

# D.—Illecillewaet Mines.

Galena, with grey copper tetrahedrite) in quartz-argentiferous.—"Isabella" claim, Illecillewaet River.—G. R. Wright, 1887. (5460.)

Quartz, with small quantities of grey copper (tetrahedrite) and green carbonate.

--"Sailor Boy" claim, Illecillewaet River.—G. R. Wright,
1887. (5461.)

Galena—argentiferous.—" Lanark" claim, Illecillewaet River.—G. R. Wright, 1887. (5462.)

Galena and zinc blende—argentiferous.—" Balfour" claim, Illecillewaet River.
--G. R. Wright, 1887. (5463.)

Iron pyrites with galena in quartz—argentiferous.—"Jumbo" claim.—Coll., E. D. Ingall, 1892. (48.)

— "Sanquahar" claim.—Coll., E. D. Ingall, 1892. (49.)

Galena—argentiferous.—"Maple Leaf" claim, thirty-three miles east of Revelstoke, and within a mile of the C.P.R. (5346.)

Galena (weathered) in a quartzose gangue—argentiferous.—"Maple Leaf" claim.—Coll., E. D. Ingall, 1892. (50.)

Galena in quartz—argentiferous.—"Cariboo" claim.—Coll., E. D. Ingall, 1892.

Iron pyrites, galena and zinc blende, in quartz—argentiferous.—"Cariboo" claim.—Coll., E. D. Ingall, 1892. (52.)

Galena, in quartz—argentiferous.—" Edinburgh" claim.—Coll., E. D. Ingall, 1892. (53.)

Galena—argentiferous.—" Elizabeth " claim. --Coll., E. D. Ingall, 1892. (54.)
Ochre do do do do (55.)

Galena, in a quartzose gangue—argentiferous.—"Herring-back" claim.—Coll., E. D. Ingall, 1892. (56.)

Zinc blende with iron pyrites, in dolomitic limestone.—"Herring-back" claim.—Coll., E. D. Ingall, 1892. (57.)

#### From the Province of British Columbia—Continued.

#### 2.—West Kootanie District—Continued.

#### D.—Illecillewaet Mines—Continued.

Galena.—An association of a somewhat finely crystalline (so-called "spangle" ore) and very fine crystalline (so-called "steel ore") galena, with some iron pyrites—argentiferous.—"Fishburn" claim.—Coll., E. D. Ingall, 1892. (60.)

Table-case 48.— Continued.

Zinc blende.—"Fishburn" claim.—Coll., E. D. Ingall, 1892. (61.

Galena, with some zinc blende—argentiferous.—"Dunvegan" claim.—Coll., E. D. Ingall, 1892. (62.)

Gaiena with iron pyrites in quartz—argentiferous.—" Dunvegan" claim.—Coll., E. D. Ingall, 1892. (63.)

Zinc blende.—"Dunvegan" claim.—Coll., E. D. Ingall, 1892. (64.)

Galena, in quartz—argentiferous. —"Gold Hill" claim.—Coll., E. D. Ingall, 1892. (65.)

Bornite, in quartz—argentiferous.—"Silver Bow" claim.—Coll., E. D. Ingall, 1892. (146.)

Copper pyrites in a gangue of dolomite with quartz.—"Silver Bow" claim.—Coll., E. D. Ingall, 1892. (153.)

Weathered rock.—"Florence" claim.—Coll., E. D. Ingall, 1892. (154.)
Galena—argentiferous.—"Union" claim.—Coll., E. D. Ingall, 1892. (155.)

in a calcareous gangue.—"Lady of the Lake" claim.—Coll., E. D. Ingall, 1892. (156.)

— "Ibex" claim.—Coll., E. D. Ingall, 1892. (157.)

with iron pyrites in quartz.—"Thex" claim.—Coll., E. D. Ingall, 1892. (158.)

Zinc blende—"Ibex" claim.—Coll., E. D. Ingall, 1892. (159.)

#### E.—Kaslo-Slocan Mines.

Galena—argentiferous.—"Triangle" claim.—Coll., E. D. Ingall, 1892. (160.)

— with some iron pyrites—" Yosemite" claim.—Coll., E. D. Ingall, 1892. (161.)

— "Montezuma" claim.—Coll., E. D. Ingall, 1892. (162.)

Ochreous earth.—" Montezuma" claim.—Coll., E. D. Ingall, 1892. (165.)

Galena with some copper pyrites—argentiferous.—" White Heather" claim.—
E. D. Ingall, 1892. (169.)

Galena—argentiferous.—" Payne" claim.—Coll., E. D. Ingall, 1892. (225.)

Galena—with some copper pyrites in a quartzose gangue.—" Beaver" claim.

—Coll., E. D. Ingall, 1892. (226.)

Table-case 70.

Zinc blende in limestone.—" Silver Tip" claim.—Coll., E. D. Ingall, 1892. (227.)

Galena—argentiferous.—" Monte Christo" claim.—Coll., E. D. Ingall, 1892. (228.)

Zinc blende.—" Monte Christo" claim.—Coll., E. D. Ingall, 1892. (229.)

Galena in dolomitic limestone—argentiferous.—" Solo" claim.—Coll., E. D. Ingall, 1892. (232.)

Quartzo-felspathic rock with limestone, carrying a little iron pyrites.—"Iron Horse \* claim.—Coll., E. D. Ingall, 1892. (233.)

#### From the Province of British Columbia—Continued.

#### 2.—West Kootanie District—Continued.

# E. Kaslo-Slocan Mines-Continued.

Table-case	Galena—argentiferous.—"Lucky Jim" claim.—Coll., E. D. Ingall, 1892. (235	.)
70.—	— in dolomitic limestone.—"Noble Five" claim.—Coll., E. D. İngal	Ι,
Continued.	1892. (246.)	
	— "Great Western" claim.—Coll., E. D. Ingall, 1892. (261.)	

- "Washington" do do do (266.)
  (so-called "ribbed" ore).—" Blue Bird "claim.—Coll., E. D. Ingall,
- 1892. (268.)
   (so-called "spangle" ore).—"Blue Bird" claim.—Coll., E. D. Ingall,
  - 1892. (269.)

     (so-called "curved-face" ore).—" Blue Bird" claim.—Coll., E. D. Ingall, 1892. (270.)
  - "Slocan Boy" claim.—Coll., E. D. Ingall, 1892. (271.)
  - (so-called steel-ore) with dark red silver ore.—"Dardanelles" claim.
     —Coll., E. C. Ingall, 1892. (272.)
  - in quartz—argentiferous.—" Okanagan" claim.—Coll., E. D. Ingall, 1892. (275.)
- with some iron pyrites and zinc blende in quartz and a little dolomite—argentiferous.—"Best" claim.—Coll. E. D. Ingall, 1892. (280.)

Zinc blende in quartz.—" Slocan Star" claim.—Coll., E. D. Ingall, 1892. (281,)
Galena—argentiferous.— do do do (282.)

— do "Freddie Lee" claim.—Coll., E. D. Ingall, 1892. (289.)

Weathered rock matter (ochre with galena).—"Freddie Lee" claim.—Coll.,
E. D. Ingall, 1892. (292.)

Galena—argentiferous.—" Wellington" mine, two and a-half miles north-east of Bear Lake, Kaslo-Slocan road.—Coll., E. D. Ingall, 1892. (295.)

Weathered rock matter.—"Wellington" mine.—Coll. E. D. Ingall, 1892.

A further specimen (No. 383) from the Wellington mine is shown in Wallcase No. 2.

# F.—Big Bend region.

Auriferous quartz.—"Big Bend" claim, Big Bend, Columbia River. (5747.)

"Homestead" claim, McCulloch Creek, Columbia River. (5748.)

G.—From other claims in the West Kootanie district.

Galena—argentiferous.—From about ten miles west of the summit of the Selkirk Range and within a mile and a half of the C. P. R. (5347.)

### 3.—Southern Interior.

# A.—Stump Lake, or Nicola Mines.

- Galena, zinc blende, iron and copper pyrites and grey copper (tetrahedrite) in quartz—argentiferous.—"Star" claim.—Presented by G. Henderson, 1888. (5763.)
  - zinc blende, iron pyrites and grey copper (tetrahedrite) in quartz—
    argentiferous.—"Joshua" claim.—Presented by Wm. Craib,
    1888. (5764.)

#### From the Province of British Columbia—Continued.

# 3.—Southern Interior—Continued.

# A .- Stump Lake, or Nicola Mines - Continued.

Galena, copper pyrites, zinc blende and iron pyrites in quartz—argentiferous.
—"King William" claim.—Presented by Wm. Craib, 1888. (5765.)

Table-case 70.

- with copper and iron pyrites in quartz—argentiferous.—'' Tubal Cain" claim.—Presented by Wm. Craib, 1888. (5766.)
  - and copper pyrites in quartz—argentiferous.—" Planet" claim.— Coll., G. M. Dawson, 1888. (5767.)
  - in quartz—argentiferous.—" Mary Reynolds" claim.—Coll., G. M. Dawson, 1888. (5768.)
- in quartz-argentiferous.-" Ardmore " claim.-Coll., G. M. Dawson, 1888. (5769.)
- iron pyrites and grey copper (tetrahedrite) in quartz—argentiferous—"Jenny Long" claim.—Coll., G. M. Dawson, 1888. (5770.)
- iron pyrites and zinc blende in quartz—argentiferous.—" Zeila" claim.—Coll., G. M. Dawson, 1888. (5771.)
- and iron pyrites in quartz—argentiferous.—"British Empire" claim.—Coll., G. M. Dawson, 1888. (5772.)

Further specimens from the Stump Lake Mines are Nos. 5491, 5706-5709 in upright Wall-case 1.

# From other claims in the Southern Interior.

- Quartz, with galena and iron pyrites—auriferous and argentiferous.—"Silver Queen "claim, Jamieson Creek, North Thompson River.-Coll., G. M. Dawson, 1888. (5773.)
  - with copper pyrites and a little galena—auriferous and argenti-ferous.—"Nevada" claim, Tulameen River.—Coll., G. M. Dawson, 1888. (5774.)
  - iron pyrites—probably auriferous and argentiferous.—"Union" claim, Tulameen River.—Coll., G. M. Dawson, with 1888. (5861.)
- Auriferous quartz.—"Bonanza" claim, Cayoosh Creek.—Coll., G. M. Dawson, 1890. (5862.)
  - "Stanley" ledge, Cayoosh Creek.—Coll., G. M. Dawson, 1890. (5863.)
  - "Bee" claim, Cayoosh Creek.—Coll., G. M. Dawson, 1890. (5864.)
  - Monashee mine, tunnel C, head waters of Cherry Creek and Kettle River.—Coll., G. M. Dawson, 1890. (5865.)
- Rock Creek, Kettle River, Okanagan.—Coll., G. M. Dawson, 1888. (5711.)

  Galena—argentiferous.—Rock Creek, Kettle River, Okanagan. (5731.)

Auriferous quartz.—Big Slide mine, bank of Fraser River, near Kelly Lake Creek.—Coll., G. M. Dawson, 1889. (5866.)

# 4.—CARIBOO AND NORTHERN INTERIOR.

Auriferous rock.—Hixon Creek, Fraser River, north of Quesnel. (1223.) Galena—argentiferous.—Sadou's ledge, Mosquito Creek, Cariboo. (4628.)

- -"Arctic Circle" claim, Boulder Creek, Omenica.-Coll., G. M. Dawson, 1877. (3526.)
- argentiferous.-" Acadia" claim, south fork of McDame Creek, Cassiar. (5562.)

#### SILVER ORES.

#### Ores of Silver from the Thunder Bay Mining Region, Lake Superior, Ontario.

Native Silver.—Singleton mine, township of McIntyre, O.—Coll., R. Bell. Table-case 1869.—Cambrian, C 1. (192.)

- Thunder Bay mine, township of McGregor, O.—Coll., R. Bell, 1869. -Cambrian, C I. (210.)
- with niccolite. "3 A" mine, township of McGregor, O. Presented by Judge Van Norman, 1875.—Archean, A-B. (972.)
  - silver glance and zinc blende.—Shuniah or Duncan mine, township of McIntyre, O.—Coll., R. Bell, 1875.—Cambrian, C I.
    - silver glance, galena and zinc blende.—Silver Islet, Lake Superior, O.—Coll., Thomas Macfarlane, 1865.—Cambrian, C 1. (343.)
  - silver glance and zinc blende.—Prince location, Spar Island, Lake Superior, O.—Coll., W. E. Logan, 1846.—Cambrian, C 1. (5995.)
- Silver glance.—Pine Bay, township of Crooks, O.—Coll., R. Bell, 1869.—Cambrian, C 1. (202.)
  - with zinc blende.—Beck or Silver Harbour mine, township of McGregor, O.—Coll., R. Bell, 1872.—Cambrian, C 1. (219.)

Galena with zinc blende.—Pie Island, Lake Superior, O.—Coll., A. R. C. Selwyn, 1882.—Cambrian, C l. (193.)

Copper glance.—Spar Island, Lake Superior, O. (5997.)

Silver minerals from the Porcupine (Twin Cities) mine, township of Gillies, O.— Cambrian, C 1.

- (1) Silver glance. (5289.)
- (5290.)
- with iron pyrites. (5291.)
- (4) (5292.)
- (6) with native silver. (5294.)
  - do (5295.)
- (8)with zinc blende. (5296.)

Note.—Of the foregoing Nos. 5289—5294 were presented by Mr. T. A. Keefer (1886), No. 5295 was collected by Mr. W. McInnes (1891) and No. 5296 by Mr. E. D. Ingall (1886).

Silver minerals from the Rabbit Mountain mine, location T 39, township of Paipoonge, O.—Cambrian, C 1.

- (1) Silver glance. (5297.)(5298.)(3) (4)(5300.)do (6)(5302.)(7) Native silver. (5303.)
- (8)(5304.)(9) Silver glance. (5305.)
- (10)with zinc blende. (5306.) do (11) Native silver with silver glance. (5307.)

Note.—Of the foregoing Nos. 5297—5304 were presented by Mr. T. A. Keefer (1886), No. 5305 by Mr. A. L. Russell (1886) and Nos. 5306 and 5307 by General Wild (1886).

#### SILVER ORES-Continued.

#### From the Thunder Bay Mining Region-Continued.

Silver minerals from the Silver Mountain mine, mining location R 56, township of Lybster, O.—Cambrian, C1.

(1) Native silver with silver glance. (5373,)

do do do (5374.)

(3) Silver glance. (5375,)

(4) Native silver, (5376.)

Note.—Of the foregoing Nos., 5373—5375 were presented by Mr. A. L. Russell (1886) and No. 5376 by Mr. W. H. Furlonge (1885).

Native silver with zinc blende.—Silver Hill claim, near Silver Mountain, mining location R 70, township of Lybster, O.—Presented by W. H. Furlonge, 1885.—Cambrian, C 1. (5378.)

Galena with zinc blende.—Badger mine, township of Gillies, O.—Coll., W. Mc-Innes, 1891.—Cambrian, C 1. (5414.)

Silver minerals and ore from the Beaver mine, mining location T 97, township of O'Connor, O.—Cambrian, C 1.

(1) Silver glance with zinc blende. (6535.)

(2) Native silver, silver glance and zinc blende: (6536.)

(3) Silver glance. (6537.)

do with iron pyrites. (6538.)

(5) Zinc blende with silver glance. (6539.)

(6) Galena, zinc blende and iron pyrites. (6540.)

(7) Silver glance. (6541.)

(8) ob native silver and zinc blende. (6542.)

(9)do with iron pyrites, (6543.)

Note.—Of the foregoing Nos. 6535, 6536 were presented by Mr. Kirkland (1885), No. 6537 by Mr. W. H. Furlonge (1885), Nos. 6538-6541 by Mr. T. A. Keefer (1888) and Nos. 6542, 6543 were collected by Mr. W. McInnes (1891).

Native silver. - 3 A mine, township of McGregor, district of Thunder Bay, O.-

Presented by Judge Van Norman, 1875.—Huronian, B. (335.) silver glance and zinc blende.—Silver Mountain, township of Lybster, district of Thunder Bay, O.—Presented by Oliver Daunais, 1884.—Cambrian, C I. (4911.)

and zinc blende. - Mining location R 238, north of Atik Lake, west of Whitefish Lake, district of Thunder Bay, O .- Presented by W. A. Allan, 1887.—Cambrian, C 1. (5450.)

Silver glance (argentite). - Jarvis Island, Lake Superior, district of Thunder Bay, O.—Coll., R. Bell, 1875.—Cambrian, C 1. (337.)

. Rabbit Mountain, district of Thunder Bay, O.—Coll., A. R. C. Selwyn, 1882.—Cambrian, C 1. (3542.)

Rabbit Mountain mine, location 39 T, township of Paipoonge, district of Thunder Bay, O.—Presented by General Wild, 1887. —Cambrian, C 1. (**5415.**)

Sylvanite, with silver glance, galena and copper pyrites.—Huronian mine, lot H l, township of Moss, district of Thunder Bay, O.—Coll., A. R. C. Selwyn, 1883.—Huronian, B. (186.)

Vitreous copper ore (chalcocite) with native silver.—Spar Island, Lake Superior, district of Thunder Bay, O.—Cambrian, C I. (344.)

Zinc blende (sphalerite), with galena—argentiferous.—From hanging-wall of vein, mining location C 45, near Little Pic River, district of Thunder Bay, O.—Coll., R. Bell, 1875.—Huronian, B. (185.) Table-case 71.-Continued

Upright wall-case 2.

### SILVER ORES-Continued.

# From the Thunder Bay Mining Region-Continued.

Upright
wall-case
2.—
Continued.

Zinc blende—Rabbit Mountain, location 39 T, township of Paipoonge, district of Thunder Bay, O.—Coll., E. D. Ingall, 1886.—Cambrian, C 1. (5994.)

Specimens of silver-lead ore from this region are also shown in this case—See further on under the heading, "Silver-lead and lead ore," Nos. 191, 194, 201, 255, 339 and 5643.

The following specimens of silver ore are from the provinces of British Columbia and Quebec.

- Copper pyrites (chalcopyrite), galena, native silver and silver glance.—Suffield mine, lot 3, range XI. of Ascot, Sherbrooke county, Q.—Pre-Cambrian, B? (331.)
  - galena and silver glance.—Suffield mine, lot 3, range XI. of Ascot, Sherbrooke county, Q.—Pre-Cambrian, B? (332.)
  - with silver glance.—Suffield mine, lot 3, range XI. of Ascot, Sher-brooke county, Q.—Pre-Cambrian, B? (338.)
- Native silver—Wellington mine, two and a-half miles north-east of Bear Lake, Kaslo-Slocan road, West Kootanie district, B.C.—Presented by Hector McRae, 1892. (383.)
- Grey copper (tetrahedrite), galena and zinc blende—argentiferous.—Cherry Creek, Shuswap Lake, B.C.—Coll., G. M. Dawson, 1877. (367.)
- Argentiferous veinstone.—Eureka mine, Fort Hope, Fraser River, B.C.—Coll., J. Richardson, 1875. (973.)
  - Victoria mine, Fort Hope, Fraser River, B.C.—Coll., J. Richardson, 1875. (974.)

#### SILVER-LEAD AND LEAD ORE.

- Galena (galenite)—argentiferous.—Nigadoo mine, Nigadoo River, Gloucester county, N.B.—Coll., R. W. Ells, 1881.—Silurian, E. (3620.)
  - with iron pyrites.—Mill Stream, parish of Beresford, about fifteen miles from Bathurst, Gloucester county, N.B.—Cambro-Silurian, D. (4775.)
  - Cap Bon Ami, Gaspé county, Q.—Coll., R. Bell, 1862.—Silurian, E 6. (309.)
  - Indian Cove, Gaspé Bay, Gaspé county, Q.—Coll., R. Bell, 1862.—
     Devonian, F. (310.)
  - Lot 32, range V. of Acton, Bagot county, Q.—Coll., J. Richardson.
    —Cambrian, C. (312.)
  - Lot 51, range XXI. of Upton, Bagot county, Q.—Coll., J. Richardson.—Cambrian, C. (323.)
  - One mile west of St. Fabien, Rimouski county, Q.—Coll., J. Richardson, 1878.—Cambrian, C. (189.)
  - Cook's Corner, St. Armand, Missisquoi county, Q.—Cambro-Silurian, D. (315.)
  - with iron pyrites, copper pyrites and grey copper—argentiferous.—
     From "main vein," lot 1, range XV. of Risborough, Beauce county, Q.—Coll., R. W. Ells, 1885.—Cambrian, C. (5132.)
  - with iron pyrites—argentiferous.—From "cross vein," lot 1, range
     XV. of Risborough, Beauce county, Q.—Coll., R. W. Ells,
     1885.—Cambrian, C. (5133.)

#### SILVER-LEAD AND LEAD ORE-Continued.

Galena (galenite)—with iron pyrites—argentiferous.—From "small vein," lot 1, range XV. of Risborough, Beauce county, Q.—Coll., R. W. Ells, 1885.—Cambrian, C. (5134.)

Unright wall-case Continued.

- Lots 20 and 21, range IV. of Buckingham, Ottawa county, Q .-Coll., H. G. Vennor, 1875.—Laurentian, A. (313.)
  - argentiferous.-Wright's mine, Block A and B, range I, of Duhamel. east shore of Lake Temiscamingue, Pontiac county, Q.-Huronian, B. (190.)
    - argentiferous.-South side of Little Whale River, east coast of Hudson Bay.—Coll., R. Bell, 1877.—Cambrian, C. (1202.)
    - argentiferous.—North shore of Lake Temiscamingue, district of Nipissing, O.—Presented by E. V. Wright, 1883. (366.)
  - Fitzroy lead mine, lot 25, range VII. of Fitzroy, Carleton county, O.—Coll., F. D. Adams, 1885.—Laurentian, A. (2583.)
  - Ramsay lead mine, lot 3, range VI. of Ramsay, Lanark county, O. -Coll., H. G. Vennor.—Cambrian, C 2. (321.)
  - From the property of Dr. Lynch, range IV. of Ramsay, Lanark county, O.—Presented by W. H. Wylie, 1883.—Cambrian, C 2. (325.)
- Lot 1, range VIII. of Lansdowne, Leeds county.—Coll., A. Murray.
- 1851.—Laurentian, A. (316.) Lot 1, range III. of Limerick, Hastings county, O.—Coll., R. Bell, 1875.—Laurentian, A. (188.)
- Tudor, Hastings county, O.—Coll., H. G. Vennor, 1868.—Laurentian, A. (319.)
- Frontenac lead mine, south half of lot 16, range IX. of Loughborough, Frontenac county, O.—Laurentian, A. (320.)
  - Lot 19, range VII. of Bedford, Frontenac county, O.—Coll., H. G. Vennor, 1868.—Laurentian, A. (322.)
- argentiferous.—Lot 12, range VIII. of Barrie, Frontenac county, O. -Laurentian, A. (349.)
- Galway, Peterborough county, O.-Laurentian, A. (328.)
- with zinc blende-argentiferous.-Cascade mine, Garden River, near Sault Ste. Marie, district of Algoma, O.—Coll., T. C. Weston, 1882.—Huronian, B. (238.)
- argentiferous.—Victoria mine, Garden River, near Sault Ste.
  Marie, district of Algoma, O.—Coll., R. Bell, 1876.— Huronian, B. (358.)
- Pointe aux Mines, Lake Superior, district of Algoma, O.—Coll., W. E. Logan, 1846.—Cambrian, C 1. (342.)
- with zinc blende—argentiferous.—From foot-wall of vein, mining location C 45, near Little Pic River, Lake Superior, district of Thunder Bay, O.-Coll., R. Bell, 1875.-Huronian, B. (191.)
- argentiferous.—From three miles west of the mouth of Little Pic River, Lake Superior, district of Thunder Bay, O.—Coll., R. Bell, 1875.—Huronian, B. (183.)
- Lot 10, range VI. of Dorion, district of Thunder Bay, O.—Coll., W. E. Logan, 1846.—Cambrian, C 1. (187.)
- Granite Island, Black Bay, Lake Superior, district of Thunder Bay, O.—Coll., W. E. Logan, 1846.—Archean, A-B. (314.)
- argentiferous.—Island No. 2 in Silver Lake, township of McTavish, district of Thunder Bay, O.—Coll., R. Bell, 1875.—Cambrian, C 1. (181.)
- with copper pyrites—auriferous and argentiferous.—Enterprise mine, township of McTavish, district of Thunder Bay, O.—Coll., R. Bell, 1875.—Cambrian, C 1. (339.)

# SILVER-LEAD AND LEAD ORE-Continued.

Upright
wall-case
2.—
Continued.

- Galena (galenite)—argentiferous.—Silver Islet, Lake Superior, district of Thunder Bay, O.—Coll., A. R. C. Selwyn, 1882.—Cambrian, C 1. (194.)
  - with zinc blende—argentiferous.—Average sample of ore from vein,
     Silver Islet, Lake Superior, district of Thunder Bay, O.—
     Coll., A. R. C. Selwyn, 1882.—Cambrian, C 1. (201.)
  - Woods' location, township of Sibley, district of Thunder Bay, O.—
     Coll., W. E. Logan, 1846.—Cambrian, C 1. (311.)
  - with zinc blende—argentiferous.—Pie Island (Dawson) mine, Pie Island, Lake Superior, district of Thunder Bay, O.—Coll., R. Bell, 1875.—Cambrian, C 1. (255.)
  - with zinc blende and native silver.—Beaver mine, location 97 T, township of O'Connor, district of Thunder Bay, O.—Presented by T. A. Keefer, 1888.—Cambrian, C. 1. (5643.)
  - with copper pyrites—argentiferous.—Sterling mine, Kokesaila River, Cowichan, Vancouver Island, B.C.—Coll., G. M. Dawson, 1881. (242.)
- Calcite, quartz, fluorite and zinc blende.—Beaver mine, location 97 T, township of O'Connor, district of Thunder Bay, O.—Presented by T. A. Keefer, 1888.—Cambrian, C. (5639.)
  - zinc blende and quartz.—Rabbit Mountain mine, location 39 T, township of Paipoonge, district of Thunder Bay, O.—Presented by T. A. Keefer, 1888.—Cambrian, C. (5640.)
- Fluorite and quartz.—Beaver mine, location 97 T, township of O'Connor, district of Thunder Bay, O.—Presented by T. A. Keefer, 1888.—Cambrian, C. (5644.)

# SPECIMENS ILLUSTRATING THE DISTRIBUTION OF SILVER-LEAD AND LEAD ORE.

Upright table-case 32.

- Galena.—From a mine on Mill stream, Beresford, Gloucester county, N.B.—Presented by W. R. Byrne, 1890.—Cambro-Silurian, D. (5592.)
  - Nigadoo mine, Nigadoo River, Gloucester county, N.B.—Coll., R. W. Ells, 1881.—Silurian, E. (182.)
  - Indian Cove, Gaspé county, Q.—Coll., R. Bell, 1862.—Devonian, F. (3602.)
  - Cap Bon Ami, Gaspé county, Q.—Coll., R. Bell, 1862.—Silurian, E 6. (3605.)
  - Percé, Gaspé county, Q.—Coll., W. E. Logan, 1843.—Devonian, F. (3616.)
    - Grande Grève, Gaspé county, Q.—Coll., H. P. Brumell, 1882.— Devonian, F. (3617.)
  - One mile west of St. Fabien, Rimouski county, Q.—Coll., J. Richardson, 1878.—Cambrian, C. (3608.)
  - Cook's Corner, St. Armand, Missisquoi county, Q.—Coll., J. Richardson.—Cambro-Silurian, D. (3606.)
  - Brome, Brome county, Q.—Pre-Cambrian, B? (3614.)
  - Owls Head, lot 8, range XI. of Potton, Brome county, Q,—Coll., W.\_
     E. Logan.—Pre-Cambrian, B? (5522.)
  - Lot 9, range IX. of Ascot, Sherbrooke county, Q.—Coll., J.Richardson.—Pre-Cambrian, B? (355.)
  - with copper pyrites.—Lot 51, range XXI. of Upton, Bagot county,
     Q.—Coll., W. E. Logan, 1847.—Cambrian, C. (3529.)
  - Lot 19, range V. of Milton, Shefford county, Q.—Coll., J. Richardson, 1863.—Cambrian, C. (3525.)

# SPECIMENS ILLUSTRATING THE DISTRIBUTION OF SILVER-LEAD AND LEAD ORE—Continued.

Galena.—Lots 20 and 21, range IV. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1875.—Laurentian, A. (3519.)

Upright table-case 32.—

- Wright's mine, Block A & B, range I. of Duhamel, Pontiac county, Q.—Huronian, B. (3609.)
- South side of entrance to Richmond Gulf, Hudson Bay.—Coll., R. Bell, 1877.—Cambrian, C. (3517.)
- Little Whale River, east coast of Hudson Bay.—Coll., R. Bell, 1877.—Cambrian, C. (3530.)
- Fitzroy lead mine, lot 25, range VII. of Fitzroy, Carleton county,
   O.—Coll., F. D. Adams, 1885.—Laurentian, A. (5050.)
  - Ramsay lead mine lot 3, range VI. of Ramsay, Lanark county, O.
     Coll., R. Oatey, 1857.—Cambrian, C 2. (3566.)
- Lot 16, range III. of Dalhousie, Lanark county, O.—Laurentian, A. (5454.)
- Lot 8, range II. of Lansdowne, Leeds county, O.—Coll., A. Murray, 1851.—Laurentian, A. (3528.)
- Lot 17, range IX. of Storrington, Frontenac county, O.—Coll., R. Bell, 1875.—Laurentian, A. (3515.)
- Lot 21, range VIII. of Bedford, Frontenac county, O.—Laurentian,
   A. (318.)
- Lot 9, range IX. of Bedford, Frontenac county, O.—Laurentian, A. (1758.)
- Lot 18, range VIII. of Bedford, Frontenac county, O.—Coll., A. Murray, 1852.—Laurentian, A. (3613.)
- with zinc blende, in dolomite.—Tudor, Hastings county, O.—Coll.,
   H. G. Vennor, 1868. (3520.)
- Lot 28, range B. of Tudor, Hastings county, O.—Coll., T. Macfarlane, 1866.—Laurentian, A. (3618.)
- Lots 28 and 29, range XIV. of Tudor, Hastings county, O.—Coll,,
   H. G. Vennor, 1868.—Laurentian, A. (3521.)
- Lot 1, range III. of Limerick, Hastings county, O.—Coll., R. Bell, 1875.—Laurentian, A. (3600.)
- Lot 3, range I. of Snider, district of Algoma, O.—Huronian, B. (5453.)
- with copper pyrites and zinc blende.—Victoria mine, Garden River, near Sault Ste. Marie, district of Algoma, O.—Coll., R. Bell, 1876.—Huronian, B. (3524.)
- Victoria mine, Garden River, near Sault Ste. Marie, district of Algoma, O.—Coll., R. Bell, 1876.—Huronian, B. (3527.)
- Victoria mine, Garden River, near Sault Ste. Marie, district of Algoma, O.—Coll., T. C. Weston, 1882.—Huronian, B. (5804.)
- Pointe aux Mines, Lake Superior, district of Algoma, O.—Coll.,
   W. E. Logan, 1846.—Cambrian, C 1. (3603.)
- Michipicoten Island, Lake Superior, district of Thunder Bay, O.—
   Coll., W. E. Logan, 1846.—Cambrian, C 1. (3610.)
- Granite Island, Black Bay, Lake Superior, district of Thunder Bay, O.—Archean, A B. (3604.)
- Island No. 2 in Silver Lake, township of MacTavish, district of Thunder Bay, O.—Coll., R. Bell, 1875.—Cambrian, C 1 (3615.)
- Lot 8, Silver Lake mining location, township of McTavish, district of Thunder Bay, O.—Coll., R. Bell, 1875.—Cambrian, C 1 (3516.)

# SPECIMENS ILLUSTRATING THE DISTRIBUTION OF SILVER-LEAD AND LEAD ORE—Continued.

Upright table-case 32.—

Galena.—with zinc blende.—Near Little Pic River, district of Thunder Bay, O.
—Coll., R. Bell, 1875.—Huronian, B. (3612.)

 Boulder Island, Big Stone Bay, Lake of the Woods, district of Rainy River, O.—Coll., R. Bell, 1878.—Huronian, B. (3523.)

 zinc blend and iron pyrites.—Otter-tail Creek, seven miles west of Field station, C.P.R., Rocky Mountains, B.C.—Coll., R. G. McConnell, 1886. (5397.)

 Monarch claim, Mount Stephen, near Field station, C.P.R., Rocky Mountains, B.C.—Coll., R. G. McConnell, 1886. (5802.)

 Cornucopia claim, Mount Stephen, near Field station, C.P.R., Rocky Mountains, B.C.—Coll., R.G. McConnell, 1886. (5803.)

Further specimens of silver and lead-ores will be found in upright wall-case 1, and separate table-cases 47, 48, 70 and 71.

#### ANTIMONY ORES.

Upright wing-case 3.

Native antimony.—Lot 28, range I. of South Ham, Wolfe county, Q.—Coll., C. W. Willimott, 1882.—Pre-Cambrian, B? (350.)

Antimony glance (stibuite). —Lake George, parish of Prince William, York county, N.B.—Lake George Mining Company.—Coll., W. Broad, 1880.—Cambro-Silurian, D. (326.)

Lake George, parish of Prince William, York county, N.B.—
 Brunswick Mining Company.—Coll., W. Broad, 1880.—
 Cambro-Silurian, D. (327.)

Lake George, parish of Prince William, York county, N.B.—Hibbard
Mining Company.—Coll., W. Broad, 1880.—Cambro-Silurian, D. (352.)

 West Gore, Hants county, N.S.—Presented by A. G. Macnaughton, 1888.—Cambrian, C. (5552.)

— Lot 28, range I. of South Ham, Wolfe county, Q.—Coll., C. W. Willimott, 1882.—Pre-Cambrian, B? (351.)

Specimens illustrating the distribution of antimony ores are shown in upright table-case 25.

### NICKEL ORES.

Magnetic pyrites (pyrrhotite)—nickeliferous.—Todd's mine, about three miles north of. St. Stephen, Charlotte county, N.B.—Coll., H. P. Brumell, 1891. (354.)

Millerite with chrome garnet in calcite.—Orford nickel mine, lot 6, range XII. of Orford, Sherbrooke county, Q. (647.)

Magnetic pyrites (pyrrhotite)—nickeliferous, with copper pyrites (chalcopyrite).—Worthington mine, lot 2, range II. of Drury, district of Algoma, O.—Coll., A. E. Barlow, 1891.—Huronian, B. (2480.)

Magnetic pyrites (pyrrhotite)—nickeliferous,—O'Connor's claim, lot 11, range V. of Lorne, district of Algoma, O.—Coll., A. E. Barlow, 1890.—Huronian, B. (4921.)

Copper pyrites (chalcopyrite), with magnetic pyrites (pyrrhotite)—nickeliferous.

—Copper Cliff mine, lot 12, range II. of McKim, district of Nipissing, O.—Huronian, B. This and the four following exhibits were presented by J. D. Evans, manager of the Canadian Copper Company, 1890. (5960.)

Upright

#### NICKEL ORES-Continued.

Magnetic pyrites (pyrrhotite) -- nickeliferous. -- Copper Cliff mine, lot 12, range II. of McKim, district of Nipissing, O.—Huronian, B. (5961.)

wing-case Magnetic pyrites with some copper pyrites (chalcopyrite). — Evans' mine, lot 1, Continued. range I. of Snider, district of Algoma, O.-Huronian B. (5962.)

Mixed ore of the Copper Cliff and Evans mines (Nos. 5959-5962), after calcination. (5963.)

Coarse metal or matte obtained from calcined ore (No. 5963). (5964.)

Nickel ore.—Wallace mine, about one mile west of the mouth of Whitefish River, Lake Huron, district of Algoma, O.—Coll., A. Murray, 1848.—Huronian, B. (348.)

Magnetic pyrites (pyrrhotite) with copper pyrites (chalcopyrite).—One mile from Jackfish Bay, Lake Superior, district of Thunder Bay, O.—Huronian, B. (334.)

Specimens illustrating the distribution of nickel ores are shown in upright table-cases Nos. 25 and 26.

#### ZINC ORE.

Zinc blende (sphalerite).—Lot 10, range IV. of Calumet, Pontiac county, Q.—Coll., W. H. Murphy, 1888.—Laurentian, A. (5455.)

Lot 18, range I. of Elzevir, Hastings, county, O.—Coll., H. G. Vennor, 1872.—Laurentian, A. (361.)

Pointe aux Mines, Lake Superior, district of Algoma, O.—Coll., W. E. Logan, 1846.—Cambrian, C 1. (363.)

Zenith zinc mine, about eleven miles north-east of Rossport (formerly McKay's Harbour), P. R., district of Thunder Bay, O.-Presented by T. A. Keefer, 1885.—Huronian, B. (5371

Kaministiquia River, district of Thunder Bay, O.—Coll., A. Murray, 1846.—Cambrian, C 1. (360.)

Specimens illustrating the distribution of zinc ore are shown in upright table-case 26.

#### BISMUTH ORE.

Specimens of this ore are shown in upright table-case 25.

# COBALT ORE.

A specimen of cobaltic mispickel (Danaite) is shown in the systematic collection of minerals, table-case 51.

#### MERCURY ORE.

Specimens of native mercury and cinnabar are shown in the systematic collection of minerals. The former in table-case 49, the latter in tablecase 50 and upright table-case 37.

#### PLATINUM.

Upright wing-case 3.—
Continued.

Specimens of native platinum and platinum arsenide are shown in the systematic collection of minerals. The former in table-case 49, the latter in table-case 51.

The following, for which space could not be found in a more appropriate place, are also shown in this case.

# ARSENIC ORE.

Arsenical pyrites (arsenopyrite, mispickel).—Gatling mine, lot 10, range VIII. of Marmora, Hastings county, O.—Coll., H. G. Vennor, 1871.—Archean, A. B. (364.)

Specimens illustrating the distribution of arsenical pyrites are shown in upright table-case 25, and a specimen of native arsenic will be found in the systematic collection of minerals, table-case 49.

#### CHROMIUM ORE.

Chromic iron ore (chromite).—Mount Albert, Shickshock Mountains, Gaspé county, Q.—Coll., J. Richardson, 1858.—Pre-Cambrian, A. B. (539.)

- Lot 1, range X. of Leeds, Megantic county, Q.—Presented by Dr. Reed, 1885.—Pre-Cambrian, B? (5234.)
- Lot 9, range X. of Cleveland, Richmond county, Q.—Coll., J. Richardson.—Pre-Cambrian, B? (5456.)
- Lot 23, range VI. of Bolton, Brome county, Q.—Coll., J. Richardson, 1865.—Pre-Cambrian, B? (472.)
- Lot 40, range II. of South Ham, Wolfe county, Q.—Coll., J. Richardson, 1865—Cambrian, C. (485.)

Specimens illustrating the distribution of this ore are shown in upright table-case 31.

# MOLYBDENUM ORE.

Molybdenite.—Harvey Hill, Leeds, Megantic county, Q.—Coll., C. W. Willimott, 1882.—Pre-Cambrian, B? (696.)

- Lot 7, range IX. of Ross, Renfrew county, O.—Coll., C. W. Willimott, 1883.—Laurentian, A. (359.)
- Lot 22, range II. of Ross, Renfrew county, O.—Coll., C. W. Willimott, 1883.—Laurentian, A. (440.)

Specimens illustrating the distribution of this ore are shown in upright table-case 31.

# SULPHUR ORE.

Iron pyrites (pyrite) and copper pyrites (chalcopyrite).—Lot 22, range I. of Garthby, Wolfe county, Q.—Coll., J. Richardson, 1858.—Pre-Cambrian, B? (368.)

#### SULPHUR ORE-Continued.

Iron pyrites,—Lot 19, range II. of Elizabethtown, Leeds county, O.—Laurentian, A. (369.)

Upright wing-case

Lot 5, range IV. of Darling, Lanark county, O.—Presented by W. H. Wylie, 1886.—Laurentian, A. (330.)

- North-west shore of Hudson Bay, south of Chesterfield Inlet, district of Keewatin.—Coll., R. Bell, 1885. (5343.)
- From the head of Eckstall Inlet, south of Port Essington, Skeena River, B.C. (5075.)

Specimens illustrating the distribution of ore of sulphur are shown in upright table-case 31.

### SPECIMENS ILLUSTRATING THE DISTRIBUTION OF ORES OF ANTIMONY, ARSENIC, BISMUTH, NICKEL AND ZINC.

# Ores of Antimony,

Native antimony.—Parish of Prince William, York county, N.B.—Coll., L. W. Bailey, 1883.—Cambro-Silurian, D. (3748.)

Upright table-case 25.

Antimony glance (stibnite).—Lake George, parish of Prince William, York county, N.B., Brunswick Mining Company.—Coll., W. Broad, 1880.—Cambro-Silurian, D. (3624.)

- Lake George, parish of Prince William, York county, N.B., Hibbard Mining Company.—Coll., W. Broad, 1880.—Cambro-Silurian, D. (3625.)
- Lake George, parish of Prince William, York county, N.B., Lake George Mining Company.—Coll., W. Broad, 1880.—Cambro-Silurian, D. (3626.)
- Lot 28, range I. of South Ham, Wolfe county, Q.—Coll., C. W. Willimott, 1882.—Pre-Cambrian, B? (3627.)
- Three miles north-west of the north end of Echo Lake, district of Algoma, O.—Coll., R. Bell, 1876.—Huronian, B. (3628.)
- Kermesite, valentinite, senarmontite and stibnite. -Lot 28, range I. of South Ham, Wolfe county, Q. -Coll., C. W. Willimott, 1882.-Pre-Cambrian, B? (3621.)
- Native antimony, with kermesite and valentinite.—Lot 28, range I. of South Ham, Wolfe county, Q.—Coll., C. W. Willimott, 1882.— Pre-Cambrian, B? (3622.)
- Native antimony with stibnite, kermesite and valentinite.—Lot 28, range I. of South Ham, Wolfe county, Q.—Coll., C. W. Willimott, 1882.—Pre-Cambrian, B? (3623.)
- Valentinite and kermesite.—Lot 28, range I. of South Ham, Wolfe county, Q.
  —Coll., C. W. Willimott, 1882.—Pre-Cambrian, B? (3586.)

See also specimens contained in upright wing-case 3.

#### Ore of Arsenic.

Arsenical pyrites (arsenopyrite).—Montague, Halifax county, N.S.—Coll., A. R. C. Selwyn, 1870.—Cambrian, C 1. (1313.)

- Ascot, Sherbrooke county, Q.—Coll., J. Richardson.—Pre-Cambrian, B ? (1885.)
- Gillen mine, lot 6, range VIII. of Marmora, Hastings county, O .-Coll., H. G. Vennor, 1871.—Archean, A. B. (365.)

See also specimens contained in upright wing-case 3.

# SPECIMENS ILLUSTRATING THE DISTRIBUTION OF ORES OF ANTIMONY, ETC.—Continued.

#### Ore of Bismuth.

Upright table-case 25.—
Continued.

Bismuth glance (bismuthinite).—Lepreau, Charlotte county, N.B.—Pre-Cambrian, A. B. (290.)

Lot 34, range III. of Tudor, Hastings county, O.—Coll., H. G. Vennor, 1875.—Laurentian, A. (345.)

 McKenzie River, north of the C.P.R. crossing, district of Thunder-Bay, O.—Coll., A. R. C. Selwyn, 1885.—Huronian, B. (5047.)

#### Ores of Nickel.

Copper pyrites, with magnetic pyrites—nickeliferous.—L'Etete, Charlotte-county, N.B.—Pre-Cambrian, A. B. (4892.)

Magnetic pyrites—nickeliferous.—Ganong's vein, Milltown, St. Stephen, Charlotte county, N.B.—Coll., H. P. Brumell, 1891. (4939.)

Three miles north of St. Stephen, Charlotte county, N.B. (6528.)
 Millerite with chrome garnet in calcite.—Lot 6, range XII. of Orford, Sherbrooke county, Q.—Pre-Cambrian, B? (5602.)

Iron pyrites, with magnetic pyrites—nickeliferous.—Lots 27 and 28, range VIII. of Clarendon, Pontiac county, Q.—Laurentian, A. (5965.)

Magnetic pyrites—nickeliferous, with copper pyrites.—Murray mine, lot 11, range V. of McKim, district of Nipissing, O.—Coll., A. E. Barlow, 1891.—Huronian, B. (4644.)

Copper pyrites, with magnetic pyrites—nickeliferous.—Copper Cliff mine, lot 12, range II. of McKim, district of Nipissing, O.—Coll., A. E. Barlow, 1890.—Huronian, B. (5954.)

Magnetic pyrites—nickeliferous, with copper pyrites.—Copper Cliff mine, lot 12, range II. of McKim, district of Nipissing, O. (5955.)

Copper pyrites, with magnetic pyrites—nickeliferous.—Copper Cliff mine, lot 12, range II. of McKim, district of Nipissing, O.—Presented by the Canadian Copper Company, J. D. Evans, manager, 1885.

Magnetic pyrites—nickeliferous.—Lot 3, range IV. of Broder, district of Nipissing, O.—Coll., A. E. Barlow, 1891.—Huronian, B. (4664.)

Copper pyrites.—Bonanza mine, east side of Wahnapitæ Lake, district of Nipissing, O.—Coll., A. E. Barlow, 1891.—Hnronian, B. (4700.)

Magnetic pyrites—nickeliferous, with copper pyrites.—Stobie mine; lot 5, range I. of Blezard, district of Nipissing, O.—Coll., A. E. Barlow, 1889.—Huronian, B. (5953.)

Magnetic pyrites—nickeliferous.—McCormick's mine, lot 12, range III. of Neelon, district of Nipissing, O.—Coll., A. E. Barlow, 1890. —Huronian, B. (5986.)

Upright table-case 26.

Magnetic pyrites—nickeliferous, with copper pyrites.—Evans' mine, lot 1, range I. of Snider, district of Algoma, O.—Presented by the Canadian Copper Company, J. D. Evans, manager, 1885.—Huronian, B. (5958.)

Magnetic pyrites—nickeliferous.—Lot 12, range III. of Denison, district of Algoma, O.—Coll., A. E. Barlow, 1891.—Huronian, B. (4697.)

Copper pyrites, with magnetic pyrites—nickeliferous.—Vermilion mine, lot 5 (and 6), range IV. of Denison, district of Algoma, O.—Coll., A. E. Barlow, 1891.—Huronian, B. (5948.)

# SPECIMENS ILLUSTRATING THE DISTRIBUTION OF ORES OF ANTIMONY, ETC.—Continued.

#### Ores of Nickel-Continued.

Magnetic pyrites—nickeliferous, with copper pyrites and galena.—Travers mine, lot 3, range V. of Drury, district of Algoma, O.—Coll., A. E. Barlow, 1891.—Huronian, B. (4668.)

Upright table-case 26.—Continued.

- Copper pyrites, with magnetic pyrites—nickeliferous.—Worthington mine, lot 2, range II. of Drury, district of Algoma, O.—Coll., A. E. Barlow, 1890.—Huronian, B. (5940, 5941.)
- Copper pyrites.—Worthington mine, lot 2, range II. of Drury, district of Algoma, O.—Coll., A. E. Barlow, 1890.—Huronian, B. (5942, 5943.)
- Magnetic pyrites—nickeliferous.—Worthington mine, lot 2, range II. of Drury, district of Algoma, O.—Coll., A. E. Barlow, 1891.—Huronian, B. (5944)
- Copper pyrites, with magnetic pyrites—nickeliferous.—Worthington mine, lot 2, range II. of Drury, district of Algoma, O.—Coll., A. E. Barlow, 1891.—Huronian, B. (5945, 5946, 5947.)
- Magnetic pyrites—nickeliferous.—Dwyer and Loughran's location, lot 3, range III. of Drury, district of Algoma, O.—Coll., A. E. Barlow, 1890.—Huronian, B. (5949.)
  - O'Connor's claim, lot 11, range V. of Lorne, district of Algoma, O.—
     Coll., A. E. Barlow, 1890.—Huronian, B. (5950.)
  - Lot 9, range VI. of Lorne, district of Algoma, O.—Coll., A. E. Barlow, 1890.—Huronian, B. (6526.)
  - O'Connor's claim, lots 1 and 2, range III. of Nairn, district of Algoma, O.—Coll., A. E. Barlow, 1891.—Huronian, B.
  - with copper pyrites.—Lots 1 and 2, range VI. of Nairn, district of Algoma, O.—Coll., A. E. Barlow, 1891.—Huronian, B. (5952.)
  - with copper pyrites.—Lot 3, range IV. of Levack, district of Algoma, O.—Coll., A. E. Barlow, 1891. (4683.)
- Copper pyrites with a nickeliferous iron sulphite.—Wallace mine, about one mile west of the mouth of Whitefish River, Lake Huron, district of Algoma, O.—Coll., A. Murray, 1848.—Huronian, B. (4718.)

See also specimens contained in upright wing-case 3.

#### Ore of Zinc.

- Zinc blende (sphalerite).—St. Armand, Missisquoi county, Q.—Presented by O. Lagrange, 1875.—Pre-Cambrian, B? (1287.)
  - Lot 10, range IV. of Calumet, Pontiac county, Q.—Presented by W. H. Murphy, 1888.—Laurentian. A. (1149.)
  - Pointe aux Mines, Lake Superior, district of Algoma, O.—Coll., W.
     E. Logan, 1846.—Cambrian, C 1. (1194.)
  - Victoria mine, Garden River, near Sault Ste. Marie, district of Algoma, O.—Coll., R. Bell, 1875.—Huronian, B. (356.)
  - McKellar's Island, Lake Superior, district of Thunder Bay, O.—
     Coll., R. Bell, 1870.—Cambrian, C 1. (1280.)
  - Kaministiquia River, district of Thunder Bay, O.—Coll., A. Murray, 1846.—Cambrian, C 1. (1214.)
    - McIntyre's mine, between Thunder Bay and Black Bay, Lake Superior, O.—Coll., R. Bell, 1869.—Cambrian, C. 1. (1285.)
    - Zenith zinc mine, about eleven miles north-east of Rossport (formerly McKay's Harbour), C. P. R., district of Thunder Bay, O.—Coll., R. Bell.—Huronian, B. (3544.)

# SPECIMENS ILLUSTRATING THE DISTRIBUTION OF ORES OF ANTIMONY, ETC.—Continued.

#### Ore of Zinc-Continued.

Upright table-case 26.—

Zinc blende.—Prince's location, Lake Superior, district of Thunder Bay, O.—Coll., W. E. Logan, 1846.—Cambrian, C 1. (1282.)

 Head of the south branch of the Red Deer River, Rocky Mountains, district of Alberta, N.W.T.—Presented by J. R. Costigan, 1885. (5084.)

# SPECIMENS ILLUSTRATING THE DISTRIBUTION OF ORES OF CHROMIUM, MOLYBDENUM, SULPHUR AND MANGANESE.

#### Ore of Chromium.

Upright table-case

- Chromic iron ore (chromite).—Mount Albert, Shickshock Mountains, Gaspé county, Q.—Coll., J. Richardson, 1858.—Pre-Cambrian, A. B. (4761.)
  - Lot 40, range II. of South Ham, Wolfe county, Q.—Coll., J. Richardson.—Cambrian, C. (4767.)
  - Lot 17, range IV. of Thetford, Megantic county, Q.—Coll., N. J. Giroux, 1889.—Cambrian, C. (5193.)
  - Lot 16, range IV. of Thetford, Megantic county, Q.—Presented by Dr. Reed, 1886.—Cambrian, C. (5329.)
  - Lot 19, range X. of Coleraine, Megantic county, Q.—Presented by Dr. Reed, 1886.—Cambrian, C. (5330.)
  - Lot 10, range X. of Leeds, Megantic county, Q.—Coll., N. J. Giroux, 1889.—Pre-Cambrian, B? (5379.)

### Ore of Molybdenum.

- Molybdenite.—North River, St. Ann's, Victoria county, Cape Breton, N.S.—Pre-Cambrian, A. B. (1780.)
  - Chegoggin Point, about four miles north of Yarmouth, Yarmouth county, N.S.—Cambrian, C. (5055.)
  - Miramichi, Northumberland county, N.B. (1267.)
  - St. Jérôme, Terrebonne county, Q.—Coll., J. Richardson.—Laurentian, A. (1265.)
  - Portage de Ste. Geneviève, Q. (1266.)
  - -- Harvey Hill, Leeds, Megantic county, Q.—Pre-Cambrian, B?
  - Lot 15, range X. of Bagot, Bagot county, Q.—Presented by D. Hunter. (4825.)
  - Lot 23, range XV. of Hull, Ottawa county, Q.—Coll., H. P. Brumell, 1892.—Laurentian, A. (1869.)
  - with molybdite.—Lot 1, range II: of Alleyn, Pontiac county, Q.— Presented by H. Henry, 1886.—Laurentian, A. (4859.)
  - Lot 2, range III. of Aldfield, Pontiac county, Q.—Presented by R. H. G. Chapman, 1885.—Laurentian, A. (4916.)
  - Lot 2, range VIII. of Eardley, Ottawa county, Q.—Presented by J, Davies, 1885.—Laurentian, A. (5051.)
  - Lot 14, range V. of North Crosby, Leeds county, O.—Laurentian,
     A. (5578.)
  - Lot 22, range II. of Ross, Renfrew county, O.—Coll., C. W. Willimott, 1883.—Laurentian, A. (5590.)
  - Terrace Bay, Lake Superior, district of Thunder Bay, O. (1263.)

# SPECIMENS ILLUSTRATING THE DISTRIBUTION OF ORES OF CHROMIUM, ETC.—Continued.

### Ore of Molybdenum-Continued.

Molybdenite Lillooet River, vicinity of New Westminster, B.C.—Presented by A. J. Hill, 1886. (5273.)

- Near the head waters of the south fork of Spuzzum Creek, Fraser River, B.C.—Presented by J. W. Mackay, 1889. (5732.)
- From copper mine, north-east side of Texada Island, B.C.—Coll.,
   G. M. Dawson, 1885. (3761.)
- Cortes Island, north-east coast of Vancouver Island, B.C.—Coll.,
   G. M. Dawson, 1885. (5053.)

# Ore of Sulphur.

Iron pyrites (pyrite).—Alfred, Prescott county, O.—Presented by Fred. Fooks, 1882.—Cambro-Silurian, D. (329.)

- Lot 19, range II. of Elizabethtown, Leeds county, O.—Laurentian, A. (2450.)
- Lot 5, range IV. of Darling, Lanark county, O.—Presented by W.
  H. Wylie, 1886.—Laurentian, A. (2451.)
- East half of lot 1, range IV. of Dalhousie, Lanark county, O.—Coll.,
   H. G. Vennor.—Laurentian, A. (2469.)
- North-west shore of Hudson Bay, south of Chesterfield Inlet, district of Keewatin.—Coll., R. Bell, 1885. (4687.)
- From head of Eckstall Inlet, south of Port Essington, Skeena River, B.C. (4688.)

### Ores of Manganese.

- Bog manganese.—Near Blowdown settlement, Richmond, Carleton county, N. B.—Coll., W. Broad, 1882. (39.)
  - Seigniory of Rivière Ouelle, Kamouraska county, Q.—Coll., J.
     Richardson.—Post Tertiary, M 3. (5195.)
  - Lot 4, range V. of Madoc, Hastings county, O.—Coll., T. Macfarlane, 1865.—Post Tertiary, M 3. (5413.)
- Pyrolusite.—Teny Cape, Hants county, N. S. -Coll., C. W. Willimott, 1883. Carboniferous, G 1. (3674.)
  - About three hundred yards east of Wasson's Bluff, Two Islands, Cumberland county, N.S.—Coll., C. W. Willimott, 1883.— Carboniferous, G. (3695).
  - About two and a half miles east of the head of Loch Lomond, Cape Breton county, N.S.—Presented by Dr. Girdwood, 1892.— Carboniferous, G 1. (4712.)
- Manganite.—Churchill's mine, Walton, Hants county, N.S.—Coll., C. W. Willimott, 1883.—Carboniferous, G 1. (1930.)
  - Teny Cape, Hants county, N.S.—Coll., C. W. Willimott, 1883.—Carboniferous, G 1. (3661.)
  - Markhamville, King's county, N.B.—Coll., L. W. Bailey, 1875.—
     Carboniferous, G 1. (5074.)
  - West Quaco, St. John county, N.B.—Coll., H. P. Brumell, 1890. (4755.)
  - Grindstone Island, Magdalen Islands, Q.—Coll., J. Richardson, 1880.—Carboniferous, G 1. (5129.)
- Psilomelane.—Gowland Mountain, Elgin, Albert county, N.B.—Presented by J. L. Harris, 1885.—Carboniferous, G 1. (5039.)

Specimens of manganese ores from the more important localities of their occurrence are shown in upright wing-case 4. Upright table-case 31.—

### MANGANESE ORES.

Upright wing-case

Pyrolusite.—Morrison's mine, about two miles east of the head of Loch Lomond, Cape Breton county, N.S.—Presented by Hon. E. T. Mozeley.—Carboniferous, G 1. (5038.)

From about three hundred yards east of Wasson's Bluff, Two Islands, Cumberland county, N.S.—Coll., C. W. Willimott, 1888.—Carboniferous, G 1. (5661.)

 Teny Cape, Hants county, N.S.—Coll., C. W. Willimott, 1883.— Carboniferous, G 1. (83.)

Manganite.—Churchill's mine, Walton, Hants county, N.S.—Coll., C. W. Willimott, 1883.—Carboniferous, G 1. (68.)

Stephens' mine, Walton, Hants county, N.S.—Coll., C. W. Willimott, 1883.—Carboniferous, G 1. (3646.)

Black Rock, Clifton, Colchester county, N.S.—Coll., C. W. Willimott, 1883.—Carboniferous, G l. (74.)

\_ Markhamville, King's county, N.B.—Carboniferous, G. 1. (67.)

— Amherst Island, Magdalen Islands, Q.—Coll., J. Richardson, 1880. Carboniferous, G 1. (69.)

— Grindstone Island, Magdalen Islands, Q.—Coll., J. Richardson, 1880.—Carboniferous, G 1. (66.)

Psilomelane.—Gowland Mountain, Elgin, Albert county, N.B.—Presented by J. L. Harris, 1885.—Carboniferous, G 1. (125.)

Manganiferous conglomerate.—From four miles north-east of Walton village, Hants county, N.S.—Coll., C. W. Willimott, 1883.— Carboniferous, G 1. (71.)

Bog manganese (wad).—French River, Colchester county, N.S.—Coll., S. Barlow, 1874.—Post Tertiary, M 3. (70.)

— Amherst Island, Magdalen Islands, Q.—Coll., J. Richardson, 1880.

Seigniory of Rivière Ouelle, Kamouraska county, Q.—Coll., J.
 Richardson, 1858.—Post Tertiary, M 3. (72.)

La Plaine, seigniory of Cacouna, Temiscouata county, Q.—Coll., J.
Richardson, 1858.—Post Tertiary, M 3. (85.)

St. Louis Road, about four miles from Quebec city, Q.—Coll., W.
 E. Logan, 1852.—Post Tertiary, M 3. (87.)

 St. George, seigniory of Aubert-Gallion, Beauce county, Q.—Post Tertiary, M 3. (88.)

Lot 4, range V. of Madoc, Hastings county, O.—Coll., T. Macfarlane, 1865.—Post Tertiary, M 3. (128.)

Specimens illustrating the distribution of manganese ore are shown in upright table-case 31.

### IRON ORES.

#### Magnetite or Magnetic Iron Ore,

Magnetite.—From half-way between Economy and Five Islands, Colchester county, N.S.—Coll., S. Barlow, 1875,—Triassic, H. (82.)

 Cleveland, Annapolis county, N.S.—Coll., T. C. Weston, 1879.— Devonian, F 1. (106.)

— Clementsvale, Annapolis county, N.S.—Coll., T. C. Weston, 1879.
—Devonian, F 1. (164.)

St. François, seigniory of Rigaud-Vaudreuil, Beauce county, Q.—
 Cambrian, C 1. (131.)

 Lot 7, range V. of Leeds, Megantic county, Q.—Presented by J. A. McVety, 1886.—Pre-Cambrian, B? (184.)

#### IRON ORES-Continued.

### Magnetite or Magnetic Iron Ore-Continued.

Magnetite—Lot 2, range X. of Leeds, Megantic county, Q.—Coll., W. E. Logan, 1S47.—Pre-Cambrian, B? (195.)

- Lot 9, range IX. of Sutton, Brome county, Q.—Pre-Cambrian, B?
- From between lots 22 and 24, range I. of South Ham, Wolfe county, Q.—Coll., C. W. Willimott, 1882.—Cambrian, C. (3657.)
- Smith's mine, lots 20 and 21, range VI. of Ascot, Sherbrooke county, Q.—Coll., R. W. Ells, 1886.—Pre-Cambrian, B?
   (5182.)
- North half of lot 3, range IV. of Grenville, Argenteuil county, Q.— Laurentian, A. (174.)
- South half of lot 3, range V. of Grenville, Argenteuil county, Q.—
   Coll., W. E. Logan, 1854.—Laurentian, A. (198.)
- Lot 14, range XIII. of Portland, Ottawa county, Q.—Laurentian,
   A. (93.)
- -- Forsyth's mine, lot 11, range VII. of Hull, Ottawa county, Q.—Laurentian, A. (96.)
- Lots 23 and 24, ranges V. and VI. of Wakefield, Ottawa county, Q.
   Pres. by J. Leduc.—Laurentian, A. (136.)
- Lot 22, range II. of Bristol, Pontiac county, Q.—Pres. by J. Bell, 1875.—Laurentian, A. (105.)
- Lot 2, range XII. of Fitzroy, Carleton county, O.—Pres. by A. Bishop, 1875.—Laurentian, A. (95.)
- Ross (opposite Portage du Fort), Renfrew county, O.—Laurentian,
   A. (126.)
- Bygrove mine, lot 3, range I. of South Sherbrooke, Lanark county,
   O.—Coll., H. G. Vennor.—Laurentian, A. (127.)
  - Meyer's or Christie's Lake mine, lots 17, 18 and 19, range III. of South Sherbrooke, Lanark county, O.—Coll., H. G. Vennor.—Laurentian, A. (117.)
    - Chaffey mine, lot 26, range VI. of South Crosby, Leeds county, O.—Laurentian, A. (119.)
- Lot 7, range II. of Escott, Leeds county, O.—Coll., A. Murray, 1852.—Laurentian, A. (177.)
- Thirty Island Lake, lot 6, range III. of Bedford, Frontenac county,
   O.—Coll., C. W. Willimott, 1883.—Laurentian, A. (133.)
- Lots 5, 6 and 7, range XII. of Barrie, Frontenac county, O.—Pres.
   by Allison & Platt, 1887.—Laurentian, A. (5389.)
- Dungannon, Hastings county, O.—Pres. by Hon. Billa Flint.— Laurentian, A. (121.)
- Seymour ore bed, lot 11, range V. of Madoc, Hastings county, O.— Laurentian, A. (130.)
- Lots 17, 18 and 19, range VIII. of Wollaston, Hastings county, O.
   —Pres. by Jenkins, Chambers & Clute, 1886.—Laurentian, A. (5220.)
- Vicinity of Big ore bed, Blairton, lot 8, range I. of Belmont, Peterborough county, O.—Laurentian, A. (86.)
- Sand-pit bed, lot 8, range I. of Belmont, Peterborough county, O.
   —Laurentian, A. (124.)
- -- Big ore bed, Blairton, lot 8, range I. of Belmont, Peterborough county, O.—Laurentian, A. (196.)
- Lot 27, range XIII. of Galway, Peterborough county, O.—Laurentian, A. (148.)

Upright wing-case 4.—
Continued.

#### IRON ORES-Continued.

### Wagnetite or Magnetic Iron Ore-Continued.

Upright wing-case	Magnetite	Lot 12, range XII. of Galway, Peterborough county, O.—Laurentian, A. (150.)
4	_	Mining location Y. XII. about three miles north-west of the village of
Continued.	_	Killarney, Georgian Bay, Lake Huron, O.—Coll., R. Bell, 1875.—Huronian, B. (142.)
	_	Peter Bell location, Batchehwahnung Bay, Lake Superior, O.—Coll., R. Bell, 1860.—Huronian, B. (115.)
	_	McKellar's location, Atik-o-kan (Antler) River, district of Rainy River, O. ('oll., R. Bell, 1888.—Archean, A. B. (5806.)
		Cherry Bluff, Kamloops Lake, B.C.—Coll., G. M. Dawson, 1877.

(80.)

East side of entrance to Harriet Harbour, Skincuttle Inlet, Queen Charlotte Islands, B.C.—Coll., G. M. Dawson, 1878. (1012.)

Charlotte Islands, B.C.—Coll., G. M. Dawson, 1878. (1012.)

— From an island near the north end of the Walker group, Queen Charlotte Sound, B.C.—Coll., J. Richardson, 1872. (79.)

From about three miles north-west of Gillies Bay, south-west side of Texada Island, B.C.—Coll., J. Richardson, 1873. (81.)

 North-east side of Texada Island, B.C.—Coll., G. M. Dawson, 1885. (606)

### Iron Sands.

Iron sand.—Moisie, Saguenay county, Q. (25.)

— do do (washed). (27.)

— Portneuf, seigniory of Mille Vaches, Saguenay county, Q. (29.)

- Bersimis, Saguenay county, Q. (32.)

— St. John River, Mingan, seigniory of Mingan, Saguenay county, Q. (35.)

- Natashquan, seigniory of Mingan, Saguenay county, Q. (36.)

- Batiscan, Champlain county, Q. (37.)

### Ilmenite or Titanic Iron.

Upright wing-case

Titanic iron ore.—Rapid River, Bay of Seven Islands, Saguenay county, Q.—Laurentian, A. (73.)

- Château Richer, Montmorency county, Q.-Laurentian, A. (76.)

St. Irénée, seigniory of Malbaie, Charlevoix county, Q.—Laurentian, A. (163.)

— St. Urbain, at Bay St. Paul, Charlevoix county, Q.—Laurentian, A. (166.)

Lot 9, range IX. of Sutton, Brome county, Q.—Presented by L. H.
 Smith.—Pre-Cambrian, B? (172.)

Lot 7, range IX. of Sutton, Brome county, Q.—Presented by D. Farnsworth.—Pre-Cambrian, B? (176.)

Lot 2, range III. of Brome, Brome county, Q.--Pre-Cambrian, B?
 (175.)

### Hematite and Varieties of the same.

Hematite.—Wentworth grant, Pictou county, N.S.—Coll., B. J. Harrington, 1873.—Silurian, E. (16.)

 East River, Pictou county, N.S.—Coll., B. J. Harrington, 1873.— Silurian, E. (17.)

(var. specular iron ore).—East River, Pictou county, N.S.—Coll.,
 B. J. Harrington, 1873.—Silurian, E. (111.)

Upright

wing-case

Continued.

#### IRON ORES-Continued

#### Hematite and Varieties of the same-Continued.

- Hematite—(var. specular iron ore) with magnetite —East River, Pictou county, N.S.—Coll., B. J. Harrington, 1873.—Silurian, E. (112.)
  - Nictaux River, Annapolis county, N.S.—Coll., T. C. Weston, 1879. —Devonian, F. (167.)
  - From about one mile from the mouth of the Beccaguimic River, Carleton county, N.B.—Coll., R. W. Ells, 1874. (94.)
  - Jacksontown, near Woodstock, Carleton county, N.B.—Coll., R. W. Ells, 1874.—Silurian, E. (103.)
  - (var. specular iron ore). West side of Pinnacle Mountain, lot 15 of St. Armand west, Missisquoi county, Q.—Coll., W. E. Logan, -Pre-Cambrian, B? (91.)
  - (var. specular iron ore).—Lot 25, range IX. of Brome, Brome county, Q.—Pre-Cambrian, B? (134.)
  - (var. specular iron ore)—Haycock mine, lot 28, range VI. of Templeton, Ottawa county, Q.—Laurentian, A. (140.)
  - (var. specular iron ore) dressed.—Haycock mine, lot 28, range VI. of Templeton, Ottawa county, Q.—Laurentian, A. (141.)
  - (var. specular iron ore).—Lac des Chats, lot 2, range I. of Bristol, Pontiac county, Q.—Coll., W. E. Logan, 1846.—Laurentian, A. (180.)
  - Lot 6, con. C and D. of McNab, Renfrew county, O.-Coll., W. E. Logan, 1846.—Laurentian, A. (199.)
  - Dalhousie (Cowan) mine, east half of lot 1, range IV. of Dalhousie, Lanark county, O.—Coll., H. G. Vennor, 1872.—Laurentian, A. (200.)

  - Lot 24, range IX. of Leeds, Leeds county, O. (89.)
    Wallbridge mine, east half of lot 12, range V. of Madoc, Hastings county, O.—Coll., C. W. Willimott, 1882.—Archean, A. B. (122.)
  - Iron Island, Lake Nipissing, district of Nipissing, O.—Presented by Joseph Lemieux, 1887.—Laurentian, A. (138.)
  - (var. specular iron ore).—Ryan's location, Mamainse (Namainse), Lake Superior, district of Algoma, O.—Coll., W. E. Logan, 1846.—Cambrian, C. (203.)
  - (var. specular iron ore).—Pointe aux Mines, Lake Superior, district of Algoma, O.—Coll., W. E. Logan, 1846.—Cambrian, C. (152.)
  - Little Gros Cap, north side of Michipicoten Harbour, Lake Superior, district of Thunder Bay, O.—Coll., R. Bell, 1876. -Huronian, B. (90.)
  - Silver Lake mining location, township of McTavish, district of Thunder Bay, O.—Coll., R. Bell, 1875.—Cambrian, C. (132.)
  - Black Island, Lake Winnipeg, Manitoba.—Coll., J. B. Tyrrell, 1889. —Archean, A. B. (151.)
  - (var. specular iron ore).-Iron Mountain, Nicola River, near the mouth of Coldwater River, B.C.-Coll., G. M. Dawson, 1877. (1221.)

#### Limonite or Brown Hematite.

- Limonite.—Londonderry, Colchester county, N.S,—Coll., B. J. Harrington, 1873.—Cambro-Silurian, D. (78.)
  - North vein, Cumberland Brook, Acadia Mines, Londonderry, Colchester county, N.S.—Coll., A. R. C. Selwyn, 1872.—Cambro-Silurian, D. (97.)

#### IRON ORES-Continued.

#### Limonite or Brown Hematite-Continued.

Upright wing-case 5.-Continued.

- Limonite—South vein, Cumberland Brook, Acadia Mines, Londonderry, Colchester county, N.S.—Coll., A. R. C. Selwyn, 1872.—Cambro-Silurian, D. (98.)
  - Cumberland Brook, Acadia Mines, Londonderry, Colchester county,
     N.S.—Coll., A. R. C. Selwyn, 1872.—Cambro-Silurian, D.
     (135.)
  - Ross' Farm, Acadia Mines, Londonderry, Colchester county, N.S.
     Coll., A. R. C. Selwyn, 1872.—Cambro-Silurian, D. (100.)
    - Engine pit, Acadia Mines, Londonderry, Colchester county, N.S.—
       Coll., A. R. C. Selwyn, 1872.—Cambro-Silurian, D. (118.)
  - Martin's Brook, Acadia Mines, Londonderry, Colchester county,
     N.S.—Coll., C. W. Willimott, 1883.—Cambro-Silurian, D.
     (5314.)
  - Londonderry, Colchester county, N.S.—Coll., C. W. Willimott, 1883.—Cambro-Silurian, D. (3666.)
  - Loudonderry, Colchester county, N.S.—Coll., C. W. Willimott, 1883.—Cambro-Silurian. D. (3668.)
  - Fraser-Saddler area, east branch of East River, Pictou county, N.S.—Coll., B. J. Harrington, 1873. (110.)
  - Fraser-Saddler area, east branch of East River, Pictou county, N.S.—Presented by Mr. Primrose. (113.)
  - Springville, East River, Pictou county, N.S.—Coll., E. Hartley, 1868. (144.)
  - Brookfield, three miles east of railway station, Colchester county,
     N.S.—Presented by R. E. Chambers, 1889.—Devonian, F. (5728.)

### Bog Iron Ore.

- Bog Iron Ore.—Nictaux River, Annapolis county, N.S.—Coll., T. C. Weston, 1879.—Post-Tertiary, M 3. (34.)
  - St. Félix, Cap de la Magdeleine, Champlain county, Q.—Post-Tertiary; M 3. (1,)
  - -- Ste. Marguerite, Cap de la Magdeleine, Champlain county, Q.—Post-Tertiary, M 3. (26.)
    - Bois de Ail, near Portneuf, Portneuf county, Q.—Post-Tertiary, M 3. (30.)
  - Second concession of Green Island, Temiscouata county, Q.—Post-Tertiary, M 3. (5.)
  - St. Vallier, Bellechasse county, Q.—Post-Tertiary, M 3. (8.)
  - From between Rivière du Sud and Rivière Bras, Bellechasse county,
     Q.—Post-Tertiary, M 3. (15.)
  - Lot 26, range IV. of St. Etienne, St. Maurice county, Q.—Post-Tertiary, M 3. (11.)
  - Lots 4, 5 and 6, range III. of Pointe du Lac, St. Maurice county,
     Q.—Post Tertiary, M 3. (31.)
  - -- Ste. Elizabeth, seigniory of Lanoraie, Joliette county, Q.—Post-Tertiary, M 3. (4.)
  - Lot 7, range II. of Kildare, Joliette county, Q.—Post-Tertiary, M 3. (6.)
  - Ste. Rose (Rosalie), seigniory of Lanoraie, Joliette county, Q.—Post-Tertiary, M 3. (13.)
  - Stanbridge, Missisquoi county, Q.—Post-Tertiary, M 3. (3.)
  - St. Jérôme, Terrebonne county, Q.-Post-Tertiary, M 3. (28.)

#### IRON ORES-Continued.

#### Bog Iron Ore-Continued.

Bog Iron Ore—Rivière du Chêne, county of Two Mountains, Q.—Post-Tertiary, M 3. (14.)

Upright wing-case 5.—
Continued.

- Côte St. Charles, seigniory of Vaudreuil, Vaudreuil county, Q.—Post-Tertiary, M 3. (7.)
- Ste. Angélique, seigniory of Vaudreuil, Vaudreuil county, Q.— Post-Tertiary, M 3. (20.)
- St. François, seigniory of Rigaud-Vandreuil, Beauce county, Q.— Presented by C. Delery.—Post-Tertiary, M 3. (21.)
- Lot 21, range VIII. of Eardley, Ottawa county, Q.—Coll., W. E.
   Logan, 1846.—Post Tertiary, M 3. (2.)
- Lot 30, range II. of Leslie, Pontiac county, Q.—Presented by R. H. G. Chapman, 1885.—Post-Tertiary, M 3. (5122.)
- North Elmsley, Lanark county, O.--Post-Tertiary, M 3. (12.)
- Lot 21, range VII. of Bastard, Leeds county, O.—Post-Tertiary, M 3. (10.)
- Thamesville, Campden, Kent county, O.—Post-Tertiary, M 3. (9.)
- Vicinity of Brandon Hills, Manitoba.—Presented by J. Holmes, 1882. (38.)

### Siderite or Spathic Iron, and Varieties of the same.

Spathic iron ore (siderite).—Mining locations 22, 23, 24, 25 and 26, township of McIntyre, district of Thunder Bay, O.—Cambrian, C. (5758.)

Clay iron-stone.—From near Tar Point, township of Douglas, Gaspé county, Q.—Coll., R. Bell, 1862.—Devonian, F. (75.)

- North Saskatchewan River, near Edmonton, district of Alberta, N.W.T.—Coll., R. W. Ells, 1875.—Cretaceo-Tertiary, K-L. (Laramie). (77.)
  - Dirt Hills, about one hundred miles south-west of Qu'Appelle, district of Assiniboia, N.W.T.—Coll., R. Bell, 1873.—Tertiary, L. (114.)

# SPECIMENS ILLUSTRATING THE DISTRIBUTION OF IRON ORES.

[These are arranged in a combined systematic and geographic manner. As facilitating a ready reference to the ore from any particular province, the specimens from the different provinces have been placed upon variously coloured card-board covering the bottom of the tray. The Maritime provinces being represented by greenish-blue, the province of Quebec by purplish-brown, that of Ontario by dark bluishgrey, the province of Manitoba and the North-west Territory by olivegreen and the province of British Columbia by salmon-red.]

#### Magnetite or Magnetic Iron Ore.

Magnetite.—Long Island, Cape Breton county, N.S.—Cambrian, C. (4674.)

Table-case 42.

- Mount Hanly, Annapolis county, N.S.—Coll., Prof. How, 1860.—
  Triassic, H. (104.)
- North Mountain, two miles from Middleton, Annapolis county, N. S.
   Coll., Prof. How, 1860.—Triassic, H. (1945.)

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### Magnetite or Magnetic Iron Ore-Continued.

. Table-case	Magnetite	-Nictaux River, Annapolis county, N.S.—Coll., T. C. Weston, 18	79.
42. —		—Devonian, F. (1947.)	
Continued	Product	Clementsvale Annapolis county, N.S.—Coll., T. C. Weston, 18	79.

— Devonian, F. (2100.)

— (fossiliferous).—Clementsvale, Annapolis county, N.S.—Coll., T. C.

Weston, 1879.—Devonian, F. (2101.)

"Potter" bed. Clementsport, Annapolis county, N.S.—Devonian,

F. (5807.)

"Wilner" bed. Clementsport. Annapolis county, N.S.—Devonian.

F. (5808.)

— Bear River, Annapolis county, N.S.—Triassic, H. (1465.)

Two miles west of Digby, Digby county, N.S.—Presented by R. W. Bulkeley, 1884.—Triassic, H. (4940.)

— From the head of Mill Stream, about fifteen miles from Bathurst and seven miles from the Intercolonial Railway, Gloucester county, N.B.—Cambro-Silurian, D. (362.)

Deer Island, Passamaquoddy Bay, Charlotte county, N.B.—Coll., R. W. Ells, 1874.—Pre-Cambrian, A. B. (1944.)

Pentecost River, Saguenay county, Q.—Coll., J. Richardson, 1864.
 Laurentian, A. (2102.)

Two and a half miles south of St. Jérôme, Terrebonne county, Q.—
 Coll., F. D. Adams, 1882.—Laurentian, A. (3651.)

Lot 26, range VII. of Bolton, Brome county, Q.—Coll., W. E. Logan, 1847.—Pre-Cambrian, B? (1974.)

 Lot 2, range XIV. of Bolton, Brome county, Q.—Pre-Cambrian, B? (1979.)

Belvidere (Clark's) mine, lot 8, range IX. of Ascot, Sherbrooke county, Q.—Coll., R. W. Ells, 1885.—Pre-Cambrian, B? (5125.)

-- Inverness, Megantic county, Q.--Presented by E. Major, Montreal, 1872. (1958.)

 Lot 7, range V. of Leeds, Megantic county, Q.—Presented by J. McVety, 1886.—Pre-Cambrian, B? (1731,)

 From the vicinity of Kinnear's Mills, Leeds, Megantic county, Q.— Pre-Cambrian, B? (5560.)

 Forsyth mine, lot 11, range VII. of Hull, Ottawa county, Q.— Laurentian, A. (1906.)

 Baldwin mine, lot 13, range VI. of Hull, Ottawa county, Q.— Laurentian, A. (1908.)

Lot 12, range V. of Wright, Ottawa county, Q.—Laurentian, A. (2107.)

Lots 39 and 49, range II. of Cameron, Ottawa county, Q.—Coll.,
 H. G. Vennor, 1876.—Laurentian, A. (2109.)

 Mulgrave, Ottawa county, Q.—Presented by W. A. Allan, 1887.— Laurentian, A. (5502.)

Bristol mine, lot 22, range II. of Bristol, Pontiac county, Q.—Coll.,
 B. J. Harrington, 1873.—Laurentian, A. (1911.)

 Lot 12, range I. of Litchfield, Pontiac county, Q.—Presented by H. K. Egan, 1887.—Laurentian, A. (5457.)

Eighth portage of the Rivière Quinze, Pontiac county, Q.—Coll., W. McOuat, 1872.—Laurentian, A. (1956.)

North half of lot 1, range I. of Torbolton, Carleton county, O.—
 Laurentian, A. (3640.)

Magnetite or Magnetic Iron Ore-Continued. Magnetite—Lot 26, range II. of Huntley, Carleton county, O.—Laurentian, A. Table-case (2111.)49 -Continued. Hill Island, one of the Thousand Islands, River St. Lawrence, Leeds county, O.-Laurentian, A. (5580.) Lot 12, range II. of North Crosby, Leeds county, O.—Coll., H. G. Vennor.—Laurentian, A. (5730.) Lot 9, range VII. of North Burgess, Lanark county, O.-Coll., H. G. Vennor.—Laurentian, A. (139.) Bulls pit, Wilbur mine, lot 4, range XII. of Lavant, Lanark county, O.—Coll., E. Coste, 1884.—Laurentian, A. (5622.) No. 2 shaft, main vein, east part, Wilbur mine, lot 4, range XII. of Lavant, Lanark county, O.-Coll., E. Coste, 1884.-Laurentian, A. (5623.) Caldwell mine, lot 13, range III. of Lavant, Lanark county, O.—Coll., E. Coste, 1884.—Laurentian, A. (5625.)

Fournier mine, lot 14, range I. of South Sherbrooke, Lanark county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1966.)Lot 24, range XII. of Rolph, Renfrew county, O.—Laurentian, A. (5631.)Lot 25, range XIII. of Rolph, Renfrew county, O.—Laurentian, A. (5632.)Norway Lake, lot 21, range X. of Bagot, Renfrew county, O .-Coll., E. Coste, 1884.—Laurentian, A. (5617.) Calabogie mine, lot 12, range VI. of Bagot, Renfrew county, O.-Coll., E. Coste, 1884.—Laurentian, A. (5619.) Lot 13, range VI. of Bagot, Renfrew county, O.—Laurentian, A. (2110.)Wilson mine, lot 12, range VIII, of Bagot, Renfrew county, O.— Coll., E. Coste, 1884.—Laurentian, A. (5620.) Leronde mine, lot 23, range XI. of Bagot, Renfrew county, O .--Coll., E. Coste, 1884.—Laurentian, A. (5630.) Williams mine, lot 21, range XII. of Bagot, Renfrew county, O.— Coll., E. Coste, 1884.—Laurentian, A. (5616.) Lot 24, range II. of Stafford, Renfrew county, O.-Presented by Rev. Fr. Marion, 1889.—Laurentian, A. (3685.) Merry mine, lot 4, range IX. of Palmerston, Frontenac county, O .--Coll., E. Coste, 1884.—Laurentian, A. (5627.) Robertsville mine, lot 4, range IX. of Palmerston, Frontenac county, O.—Coll., E. Coste, 1884.—Laurentian, A. (5628.) Lot 28, range XI. of Palmerston, Frontenac county, O.—Presented by Messrs. Wylie & Hall, 1884.—Laurentian, A. (3655.) Lot 17, range XI. of Olden, Frontenac county, O.-Laurentian, A.

(3652.)Howse mine, lot 4, range I. of Bedford, Frontenac county, O .-Coll., B. J. Harrington, 1873. Laurentian A. (1968.)

Eagle Lake, lot 29, range I. of Bedford, Frontenac county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1948.) Glendower mine, lot 6, range II. of Bedford, Frontenac county, O.

-Coll., E. Coste, 1884.—Laurentian, A. (5606.)

Thirty Island Lake, lot 6, range III. of Bedford, Frontenac county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1931.)

Lot 28, range IV. of Bedford, Frontenac county, O.—Presented by W. Davies, 1887.—Laurentian, A. (5507.)

Table-case 43.

# Magnetite or Magnetic Iron Ore-Continued.

Table-case Magnetite - Lots 5, 6 and 7, range XII. of Barrie, Frontenac county, O. — Presented by Messrs. Allison & Platt, 1887.—Laurentian, A. (443.)

-- Dufferin mine, lot 18, range I. of Madoc, Hastings county, O.—Coll., C. W. Willimott, 1885.—Laurentian, A. (5232.)

Hobson mine, lot 19, range I. of Madoc, Hastings county, O.—Coll., E. Coste, 1884.—Laurentian, A. (5585.)

Dominion mine, lot 2, range II. of Madoc, Hastings county, O.—Coll., E. Coste, 1884.—Laurentian, A. (5588.)

Seymour mine, lot 11, range V. of Madoc, Hastings county, O.--Coll., B. J. Harrington, 1873.—Laurentian, A. (1921.)

— Gillen mine, lot 7, range VI. of Madoc, Hastings county, O.—Presented by John Stewart, 1882.—Laurentian, A. (2103.)

Cameron mine, lot 9, range VI. of Madoc, Hastings county, O.—Coll., E. Coste, 1884.—Laurentian, A. (5591.)

Forty-nine acre mine, lot 10, range VI. of Madoc, Hastings county,
 O.—Coll., E. Coste, 1884.—Laurentian, A. (5587.)

Sexsmith mine, lot 8, range VII. of Madoc, Hastings county, O.— Presented by John Stewart, 1882.—Laurentian, A. (2105.)

St. Charles mine, lot 19, range XII. of Tudor, Hastings county, O. - Coll., E. Coste, 1884.—Laurentian, A. (5609.)

Becker mine, lot 18, range XVIII. of Tudor, Hastings county, O.—
 Coll., E. Coste, 1884.—Laurentian, A. (5610.)

— Emily mine, lot 7, range XIX. of Tudor, Hastings county, O.—Coll., E. Coste, 1884.—Laurentian, A. (5607.)

 Louise or Orton mine, lot 57, west half of Free Grants, Hastings Road, Tudor, Hastings county, O.—Coll., E. Coste, 1884.— Laurentian, A. (5615.)

Killey's property, lot 13, range II. of Marmora, Hastings county,
 O.—Coll., E. Coste, 1884.—Laurentian, A. (5603.)

Kean ore bed, north side of Crow Lake, lot 12, range III. of Marmora, Hastings county, O.—Coll., H. G. Vennor, 1867.—Laurentian, A. (116.)

Marsh ore bed, lot 9, range VI. of Marmora, Hastings county, O.—
 Coll., E. Coste, 1884.—Laurentian, A. (5718.)

— McCallum ore bed, lot 9, range VIII. of Marmora, Hastings county, O.—Coll., H. G. Vennor, 1867.—Laurentian, A. (120.)

Nihil mine, lot 16, range X. of Marmora, Hastings county, 0.—
 Coll., E. Coste, 1884.—Laurentian, A. (5601.)

Lot 14, range I. of Wollaston, Hastings county, O.—Messrs.
 Chambers and McLeod, 1885.—Laurentian, A. (5197.)

 Lot 15, range I. of Wollaston, Hastings county, O.—Messrs. Jenkins and Chambers, 1885.—Laurentian, A. (5199.)

Lot 15, range II. of Wollaston, Hastings county, O.—Messrs. Jenkins, Chambers, Brown and Clute, 1885.—Laurentian, A. (5198.)

Lot 16, range II. of Wollaston, Hastings county, O.—Messrs. Jenkins, Chambers, Brown and Clute, 1885.—Laurentian, A. (5202.)

- Lot 14, range IV. of Wollaston, Hastings county, O.—Messrs. Jenkins, Chambers, Brown and Clute, 1885.—Laurentian, A. (5201.)

Coe Hill mine, lot 16, range VIII. of Wollaston, Hastings county,
 O.—Coll., F. Coste, 1884.—Laurentian, A. (5604.)

### Magnetite or Magnetic Iron Ore-Continued.

- Magnetite—Lots 17 and 18, range VIII. of Wollaston, Hastings county, O.—
  Messrs. Jenkins, Chambers and Clute, 1885.—Laurentian, A.
  (5203.)
- Table-case 43.—
  Continued.
- Lot 9, range XV. of Wollaston, Hastings county, O.—Messrs. Jenkins and Chambers, 1885.—Laurentian, A. (5200.)
- Lot 10, range XV. of Wollaston, Hastings county, O.—Messrs. Jenkins, Chambers and Mallett, 1885.—Laurentian, A. (5196.)
- Big ore bed, Blairton, lot 8, range I. of Belmont, Peterborough county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1914.)
- Lot 19, range I. of Belmont, Peterborough county, O.—Coll., E. Coste, 1884.—Laurentian, A. (5613.)
- Lot 22, range XII. of Galway, Peterborough county, O.—Laurentian,
   A. (149.)
- Swamp Lake, lot 23, range XII. of Galway, Peterborough county, O.—Coll., E. Coste, 1885.—Laurentian, A. (5612.)
- Paxton & Jones mine, lot 5, range V. of Lutterworth, Haliburton county, O.—Coll., E. Coste, 1884.—Laurentian, A. (5626.)
- Lot 20, range I. of Snowdon, Haliburton county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1951.)
- From the vicinity of Little Gull, Lake, district of Thunder Bay, O.
   Coll., E. D. Ingall, 1886. Cambrian, C 1. (5391.)
- McKinley's location, north shore of Gun-flint Lake, district of Thunder Bay, O.—Coll., A. C. Lawson, 1887.—Cambrian, C 1. (5559.)
- Greenwater Lake, district of Thunder Bay, O.—Coll., W. McInnes, 1891.—Archean, A. B. (5396.)
- Seine River (fifty miles down from Savanne on the Canadian Pacific Railway), district of Rainy River, O.—Presented by T. McKellar, 1885.—Archean, A. B. (5048.)
- "Lake where the river bends," Big Turtle River, district of Rainy River, O.—Coll., W. H. C. Smith, 1891.—Archean, A. B. (2582.)
- McKellar Brothers' location, Atik-o-kan (Antler) River, district of Rainy River, O.—Coll., R. Bell, 1888.—Archean, A. B. (5805.)
- Magnetite Island, Narrows of Knee Lake, district of Keewatin, O.
   --Coll., R. Bell, 1878.—Huronian, B. (2112.)
- Pine Creek, Waterton River (fifteen miles from the fork of North Fork and Waterton River), district of Alberta, N.W.T. (3712.)
- Kootanie River (between Kootanie Lake and Columbia River, at the ferry below the lower fall), B.C.—Coll., G. M. Dawson, 1889. (24.)
- Ten miles from Hope, Fraser River, B.C.—Coll., J. Richardson, 1873. (1953.)
- Joseph Watkinson's farm, left bank of the Fraser River, twentythree miles above Lytton, B.C.—Coll., G. M. Dawson, 1888. (5775.)
- Half a mile below Nicoamen, Thompson River, B.C.—Coll., J. Richardson, 1873. (1954.)
- Knight Inlet, B.C.—Coll., J. Richardson, 1873. (1955.)
- North side of Rivers Inlet (about twenty-five miles up), B.C.—Coll., G. M. Dawson, 1888. (5735.)

# Magnetite or Magnetic Iron Ore-Continued.

Table-case Magnetite.—North-east side of Texada Island, B.C.—Coll., G. M. Dawson, 1885.

From a mine about three miles north-west of Gillies Bay, south-west side of Texada Island, B.C.—Coll., J. Richardson, 1873. (1946.)

 Sooke iron mine, Strait of Juan de Fuca, Vancouver Island, B.C. (5282.)

From an island near the north end of the Walker Group, in Queen Charlotte Sound, B.C.—Coll., J. Richardson, 1872. (1952.)

Magnetic iron sand.—Cape Commerell, north end of Vancouver Island, B.C.—Coll., G. M. Dawson, 1885. (5386.)

### Hematite, and Varieties of the same.

Hematite.—Gallas Point, east side of Hillsborough Bay, Prince Edward Island.
—Coll., A. R. C. Selwyn, 1874.—Carboniferous, G 4. (2024.)

Indian Reserve, Whykokomagh, Inverness county, N.S.—Coll., C.
 Robb, 1873.—Pre-Cambrian, A.B. (2007.)

Breac Brook, East Bay, Cape Breton county, N.S.—Coll., H. Fletcher, 1879.—Contact of Carboniferous, G, and Pre-Cambrian, A.B. (2017.)

 Near Big Pond, East Bay, Cape Breton county, N.S.—Contact of Carboniferous, G, and Pre-Cambrian, A.B. (6529.)

Loran Beach, Louisbourg, Cape Breton county, N.S.—Coll., A. R. C. Selwyn, 1874.—(Loose). (2010.)

-- Archie McVicar's mine, near the head of Loch Lomond, Cape Breton county, N.S.—Coll., H. Fletcher, 1881.—Carboniferous, G.1. (2124.)

(var. micaceous iron ore).—Robinson Cove, near St. Peters, Richmond county, N.S.—Devonian, F. (5712.)

 (var. micaceous iron ore).—Borrowdale, Salmon River, Richmond county, N.S.—Devonian, F. (3664.)

(var. micaceous iron ore).—Gairloch Mountain, Middle River, Victoria county, N.S.—Coll., H. Fletcher, 1879.—Contact of Carboniferous, G, and Pre-Cambrian, A.B. (2126.)

- (var. micaceous iron ore).—Cameron's Mill, Roman Valley, Guysborough county, N.S.—Coll., H. Fletcher, 1884.—Devonian, F. (3662.)

· (var. specular iron ore).—Crane Iron Company's mine, Salmon River, Guysborough county, N.S.—Coll., H. Fletcher, 1883.
—Devonian, F. (3663.)

(var. micaceous iron ore.)—Near Stewart Pond, Guysborough county,
 N.S.—Coll., H. Fletcher, 1879.—Devonian, F. (2125.)

(var. specular iron ore).—Chedabucto Bay, Guysborough county,
 N.S.—Coll., H. Fletcher, 1878.—Devonian, F. (1990.)

 Polson's Lake, Antigonish county, N.S.—Coll., A. R. C. Selwyn, 1874.—Devonian, F. (2020.)

Nictaux River, Annapolis county, N.S.—Coll., T. C. Weston, 1879. Devonian, F. (2127.)

-- Teny Cape, Hants county, N.S.—Coll., C. W. Willimott, 1883.—Carboniferous, G 1. (3667.)

Area 45 (Blanchards), Pictou county, N.S.—Coll., B. J. Harrington, 1873.—Silurian, E. (2003.)

### Hematite and Varieties of the same-Continued.

- Hematite—Area 100, East River, Picton county, N.S.—Coll., B. J. Harrington, 1873.—Silurian, E. (2005.)
  - (var. specular iron ore).—Area 100, East River, Pictou county, N.
     S.—Coll., B. J. Harrington, 1873.—Silurian, E. (1995.)
  - -- Area 108, Pictou county, N.S.—Coll., B. J. Harrington, 1873.—Silurian, E. (2014.)
  - Peter Totten lot, Acadia Mines, Londonderry, Colchester county, N.S.—Coll., A. R. C. Selwyn, 1872.—Cambro-Silurian, D. (102.)
  - (var. specular iron ore.)—Cook's Brook, Acadia Mines, Londonderry, Colchester county, N.S.—Coll., B. J. Harrington, 1873.—Cambro-Silurian, D. (1996.)
  - Iron Ore Hill, near Jacksonville, Carleton county, N.B.—Coll., R.
     W. Ells, 1874.—Silurian, E. (2025.)
  - Carnie's Mine, Moody's Hill, near Jacksonville, Carleton county,
     N.B.—Coll., R. W. Ells, 1874.—Silurian, E. (2026.)
  - Stevens' Mine, Jacksontown, near Woodstock, Carleton county,
     N.B.—Coll., R. W. Ells, 1874.—Silurian, E. (2027.)
  - Jarvis Easty's lot, Flagstaff Hill, Carleton county, N.B.—Coll., R.
     W. Ells, 1874.—Silurian, E. (2028.)
  - About one mile from the mouth of the Beccaguimic River, Carleton county, N.B.—Coll., R. W. Ells, 1874.—Silurian, E. (2029.)
  - Amherst Island, Magdalen Islands, Q.—Coll., J. Richardson, 1880.
     —Carboniferous, G 1. (2128.)
  - (var. specular iron ore).—Lot 17, range XIII. of Leeds, Megantic county, Q.—Pre-Cambrian, B? (1999.)
  - (var. micaceous iron ore).—Lot 45, St. Armand East, Missisquoi county, Q.—Pre-Cambrian, B? (92.)
  - (var. specular iron ore).—West side of Pinnacle Mountain, St. Armand West, Missisquoi county, Q.—Pre-Cambrian, B? (1994.)
  - (var. specular iron ore).—Lot 6, range IX. of Sutton, Brome county, Q.—Pre-Cambrian, B? (2006.)
  - (var. specular iron ore).—Lot 22, range III. of Shefford, Shefford county, Q.—Presented by J. A. Leatch, 1886.—Pre-Cambrian, B? (5326.)
  - (var. specular iron ore).—Haycock mine, lot 28, range VI. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1993.)
  - (var. specular iron ore).—Lac des Chats, lot 2, range I. of Bristol,
     Pontiac county, Q.—Coll., W. E. Logan, 1846.—Laurentian,
     A. (1997.)
  - -- Lot 27, range VIII. of Clarendon, Pontiac county, Q.—Presented by J. McTiernan, 1888.—Laurentian, A. (5561.)
  - East half of lot 14, range XI. of Beckwith, Lanark county, O.—Coll., A. R. C. Selwyn, 1887.—Cambrian, C 2. (5335.)
  - Lot 30, range VI. of North Elmsley, Lanark county, O.—Presented by A. B. Savage, 1872.—Laurentian, A. (2009.)
  - Dalhousie or Cowan mine, east half of lot 1, range IV. of Dalhousie,
     Lanark county, O.—Coll., H. G. Vennor, 1872.—Laurentian,
     A. (2019.)
  - Lot 23, range XI. of Darling, Lanark county, O.—Laurentian, A. (5558.)

Table-case
44.—
Continued.

Table-case

44.— Continued.

# SPECIMENS ILLUSTRATING THE DISTRIBUTION OF IRON ORES - Continued.

# Hematite, and Varieties of the same—Continued. Hematite—Lot 6, concession C and D of McNab, Renfrew county, O.—Coll.,

(2032.)

W. E. Logan, 1846.—Laurentian, A. (2031.)

Lot 24. range X. of Bastard, Leeds county, O.—Cambrian, C1.

Lot 19, range IX. of South Crosby, Leeds county, O.—Presented

		by M. Brown, 1886.—Laurentian, A. (5283.)
		Lot 24, range IX. of Leeds, Leeds county, O. (2030.)
	minor	Lots 7 and 8, range III. of South Canonto, Frontenac county, O.—Laurentian, A. (5581.)
Table-case 45.	_	West half of lot 28, range V. of Oso, Frontenac county, O.—Presented by W. A. Allan, 1889.—Laurentian, A. (5722.)
		Wallbridge mine, east half of lot 12, range V. of Madoc, Hastings county, O.—Archean, A.B. (2129.)
	-	(var. micaceous iron ore).—St. Charles mine, lot 4, range VI. of Madoc, Hastings county, O.—Coll., E. Coste, 1884.—Laurentian, A. (5596.)
	_	St. Charles mine, lot 4, range VI. of Madoc, Hastings county, O.—Coll., E. Coste, 1884.—Laurentian, A. (5597.)
	_	Lot 12, range V. of Madoc, Hastings county, O.—Coll., E. Coste, 1884.—Laurentian, A. (5589.)
		Lot 14, range IX. of Marmora, Hastings county, O.—Coll., E, Coste, 1884.—Laurentian, A. (5600.)
		Bentliffe mine, lot 13, range X. of Marmora, Hastings county, O.—Coll., E. Coste, 1884.—Laurentian, A. (5598.)
		Lot 7, range V. of Belmont, Peterborough county, O.—Laurentian, A. (260.)
	_	Iron Island, Lake Nipissing, O.—Laurentian, A. (2022.)
	Million yes	Talon Chute, township of Olrig, district of Nipissing, O.—Coll., H. P. Brumell, 1887.—Laurentian, A. (5780.)
		Stobie mine, V. 8, township of Coffin additional, district of Algoma, O.—Coll., A. R. C. Selwyn, 1888.—Huronian, B. (5633.)
	_	(var. micaceous iron ore).—Stobie mine, V. 8, township of Coffin additional, district of Algoma, O.—Coll., A. R. C. Selwyn, 1888.—Huronian, B. (5634.)
		(var. specular iron ore).—Wallace mining location, near Whitefish River, district of Algoma, O.—Coll., A. Murray, 1847.— Huronian, B. (1998.)
		Alvira Bay, Lake Superior, O.—Coll., W. E. Logan, 1846. (3647.)
	_	Little Gros Cap, north side of Michipicoten Harbour, Lake Superior, O.—Coll., R. Bell, 1876.—Huronian, B. (2033.)
		(var. specular iron ore).—Cape Gargantua, Lake Superior, O.—Coll., W. E. Logan, 1846. (2008.)
		Trackers ment of City I I I I I I I I I I I I I I I I I I I

C 1. (2076.)

(5563.)

Black Island, Lake Winnipeg, Manitoba.—Presented by W. Murdoch, 1882.—Archean, A. B. (3653.)

Eastern part of Silver Lake mining location, township of McTavish, district of Thunder Bay, O.—Coll., R. Bell, 1875.—Cambrian,

Location R 280, about three-quarters of a mile west of Loon Lake, district of Thunder Bay, O.—Coll., A. C. Lawson, 1887.

 (var. specular iron ore).—At the junction of Nicola and Coldwater Rivers, B.C.—Presented by De Wolf & Monro, Vancouver, B.C. (3749.)

#### Limonite or Brown Hematite.

Limonite.—East branch of the East River, Pictou county, N.S.—Coll., B. J. Table-case
Harrington, 1873. (2051.)

Area 46 (Fraser Saddler) Fast River Picton county N.S.—Coll. Continued.

Area 46 (Fraser Saddler), East River, Pictou county, N.S.—Coll.;
 B. J. Harrington, 1873. (2052.)

- Area 105 (Cullen), near the west branch of the East River, Pictou county, N.S.—Coll., B. J. Harrington, 1873. (2156.)
- -- Fraser Saddler area, East River, Pictou county, N.S.—Coll., B. J. Harrington, 1873. (2061.)
- Brookfield, Colchester county, N.S.—Presented by R. E. Chambers, 1889.—Devonian, F. (5729.)
- Between Martin's and Cumberland Brooks, Acadia Mines, Londonderry, Colchester county, N.S.—Coll., A. R. C. Selwyn, 1872. —Cambro-Silurian, D. (2047.)
- Martin's Brook, Acadia Mines, Londonderry, Colchester county, N.S.—Cambro-Silurian, D. (2054.)
- Martin's Brook, Acadia Mines, Londonderry, Colchester county,
   N.S.—Coll., B. J. Harrington, 1873.—Cambro-Silurian, D.
   (2132.)
- Cumberland Brook, Acadia Mines, Londonderry, Colchester county,
   N.S.—Coll., A. R. C. Selwyn, 1872.—Cambro-Silurian, D. (2050.)
- -- Acadia Mines, Londonderry, Colchester county, N.S.—Cambro-Silurian, D. (1366.)
- Probert level, Acadia Mines, Londonderry, Colchester county, N.S.
   —Coll., A. R. C. Selwyn, 1872.—Cambro-Silurian, D. (2131.)
- Acadia Mines, Londonderry, Colchester county, N.S.—Coll., C. W. Willimott, 1883.—Cambro-Silurian, D. (4643.)
- Cape Enragé, Albert county, N.B.—Coll., R. W. Ells, 1877.—Carboniferous, G 1. (2130.)

### Bog Iron Ore.

- Bog Iron Ore.—From near the Indian Reserve, Whykokomagh, Inverness county, N.S.—Coll., C. Robb, 1873.—Post-Tertiary, M 3. (2133.)
  - Concession 2 of Green Island, Temiscouata county, Q.—Post-Tertiary, M 3. (2070.)
  - St. Félix, Cap de la Magdeleine, Champlain county, Q.—Post-Tertiary, M 3. (2067.)
  - St. Maurice Forges, vicinity of Three Rivers, St. Maurice county,
     Q.—Coll., B. J. Harrington, 1874.—Post-Tertiary, M 3
     (2058.)
  - Lot 26, range IV. of St. Etienne, St. Maurice county, Q.—Post-Tertiary, M 3. (2068.)
  - Ste. Rose (Rosalie), Lanoraie, Joliette county, Q.—Post-Tertiary, M 3. (2078.)
  - ·— Lot 7, range I. of Kildare, Joliette county, Q.—Post-Tertiary, M 3 (2062.)
  - Lot 8, range XII. of Simpson, Drummond county, Q.—Post-Tertiary
     M 3. (2074.)
  - St. Vallier, Bellechasse county, Q.—Post-Tertiary, M 3. (2077.)
  - L'Acadie, St. John's county, Q.—Post-Tertiary, M 3. (2134.)

		Bog Iron Ore—Continued.
Table-case	Bog Iron C	Ore. Lot 12, range IV. of Ireland, Megantic county, Q.—Post-Tertiary, M 3. (2064.)
Continued.		Stanbridge, Missisquoi county, Q.—Post-Tertiary, M 3. (2066.)
	_	St. François, seigniory of Rigaud-Vaudreuil, Beauce county, Q.—Post-Tertiary, M 3. (2075.)
	_	Lake Aylmer Road, lot 22, Wolfe county, Q.—Post-Tertiary, M 3. (4670.)
	_	Lot 15, range IV. of Ascot, Sherbrooke county, QPost-Tertiary, M 3. (3669.)

Tertiary, M 3. (2063.)

Table-case

46.

Lot 11 of Côte St. Charles, seigniory of Vaudreuil, Vaudreuil county, Q.—Post-Tertiary, M 3. (2073.) Upper Rocky Point, lot 21, range VIII. of Eardley, Ottawa county, Q.—Coll., W. E. Logan, 1846.—Post-Tertiary, M 3.

(manganiferous).—Ste. Angélique, Vaudreuil county, Q.—Post-

- (2071.)Lot 21, range VII. of Bastard, Leeds county, O.—Post-Tertiary, M 3. (2059.)
- Thamesville, Campden, Kent county, O .- Post-Tertiary, M 3. (2072.)
- Twenty-two miles north-west of Fort Mattachewan, Montreal River, district of Nipissing, O.—Presented by E. B. Haycock, 1888.—Post-Tertiary, M 3. (5714.)
- Brandon Hills, Manitoba,—Presented by J. Holmes, 1881. (3665.)

### Siderite or Spathic Iron, and Varieties of the same.

Siderite.—Sutherland's River, Pictou county, N.S.—Coll., E. Hartley, 1869.— Carboniferous, G. 2. (2086.)

- New Mines.—Acadia Mines, Londonderry, Colchester county, N.S.-Coll., A. E. Barlow, 1884.-Cambro-Silurian, D. (2135.)
- (partially altered to hematite).—Peter Totten lot, Acadia Mines, Londonderry, Colchester county, N.S.—Coll., B. J. Har-rington, 1873.—Cambro-Silurian, D. (2012.)
- (altered to hematite).—Peter Totten lot, Acadia Mines, London-derry, Colchester county, N.S.—Coll., B. J. Harrington, 1873—Cambro-Silurian, D. (2099.)
- Lots 22 to 26, township of McIntyre, district of Thunder Bay, O.—Cambrian, C 1. (5759.)
- First Fall, Little Whale River, east coast of Hudson Bay. Coll.,
- R. Bell, 1877.—Cambrian, C. (4639.) Flint Island, east coast of Hudson Bay.—Coll., R. Bell, 1877.— Cambrian, C. (4728.)
- Clay iron-stone, -Springhill, Cumberland county, N.S. -Coll., S. Barlow, 1873.—Carboniferous, G 3. (2089.)
  - South Joggins, Cumberland county, N.S.—Coll., T. C. Weston, 1882.—Carboniferous, G. (2085.)
  - East River, Pictou county, N.S.—Coll., B. J. Harrington, 1873.— Carboniferous, G. (2092.)
  - Souris City, Souris River, Manitoba.—Coll., A. R. C. Selwyn, 1882.—Cretaceo-Tertiary, K. L. (Laramie). (3747.)

Siderite or Spathic Iron, and Varieties of the same—Continued.

Clay iron-stone.—Pembina River, Manitoba.—Coll., G. M. Dawson, 1873.— Table-case Cretaceous, K. (5570.) 46 -Great Valley, district of Assiniboia, N.W.T.—Coll., G. M. Dawson, 1873.—Cretaceo-Tertiary, K.L. (Laramie). (2082.)

Souris River, near Wood End Depôt, district of Assiniboia, N.W. T.—Coll., G. M. Dawson, 1873. (5572.)

- Twelve miles east of White Mud River (on trail), district of Assiniboia, N.W.T.—Coll., G. M. Dawson, 1873. (3656.)
- Bad Lands, south of Wood Mountain, district of Assiniboia, N.W. T.—Coll., G. M. Dawson, 1873. (5569.)
- North-east of East Butte, district of Assiniboia, N.W.T.-Coll., G. M. Dawson, 1873.—Cretaceous, K. (5571.)
- About fifteen miles south of Fort Pelly, at the intersection of Fort Pelly Road and White Mud River, district of Assiniboia, N. W.T.—Coll., R. Bell, 1875.—Cretaceous, K. (2140.)
- Dirt Hills, about one hundred miles south-west of Qu'Appelle, district of Assiniboia, N.W.T.—Coll., R. Bell, 1873.—Tertiary, L. (2079.)
- Middle Bluff, Dirt Hills, district of Assiniboia, N.W.T.—Coll., R. Bell, 1873.—Tertiary, L. (2083.)
- North Saskatchewan River, near Edmonton, District of Alberta, N. W.T.-Coll., R. W. Ells, 1875.-Cretaceo-Tertiary, K. L. (Laramie). (2090.)
- (partially reduced). From burnt seam of lignite, Haney's second claim, North Saskatchewan River, section 35, township 50, range IV., west of the 5th initial meridian, about sixty miles above Edmonton, district of Alberta, N.W.T.—Coll., J. B. Tyrrell, 1886.—Cretaceo-Tertiary, K. L. (Laramie). (5443.)
- Ridge south of Battle River, township 38, range XIII., west of the 4th initial meridian, district of Alberta, N.W.T.—Coll., J. B. Tyrrell, 1884.—Cretaceo-Tertiary, K.L. (Laramie). (5435.)
  - Red Deer River, township 35, range XXI., west of the 4th initial meridian, district of Alberta, N.W.T.—Coll., J. B. Tyrrell, 1884.—Cretaceo-Tertiary, K. L. (Laramie). (5433.)
- Red Deer River, township 38, range XXIV., west of the 4th initial meridian, district of Alberta, N.W.T.—Coll., J. B. Tyrrell, 1884.—Cretaceo-Tertiary, K. L. (Laramie), (5434.)
- Twelve miles above Prairie Island, Bow River, district of Alberta, N. W. T.—Coll., G. M. Dawson, 1881.—Cretaceous, K. (2137.)
- Eight miles above Grassy Island, Bow River, district of Alberta, N. W.T.—Coll., G. M. Dawson, 1881.—Cretaceous, K. (2138.)
- Kananaskis or Rapid River, near its confluence with the Bow River, district of Alberta, N.W.T.—Coll., G. M. Dawson, 1881.— Cretaceo-Tertiary, K. L. (Laramie). (2144.)
- Coal Banks, Belly River, district of Alberta, N.W.T.-Coll., G. M. Dawson, 1881.—Cretaceous, K. (2145.)
- North-east angle of Driftwood Bend, Belly River, district of Alberta, N.W.T.—Coll., G. M. Dawson, 1881.—Cretaceous, K. (2142.)
- Three miles south of Big Island, Belly River, district of Alberta, N.W.T.—Coll., G. M. Dawson, 1881.—Cretaceous, K. (2143.)
- Mill Creek, four miles above the mill, Old Man River, district of Alberta, N.W.T.—Coll., G. M. Dawson, 1881.—Cretaceous K. or Cretaceo-Tertiary, K. L. (Laramie). (2139.)

# Siderite or Spathic Iron, and Varieties of the same-Continued.

Table-case
46.—
Continued.

- Clay iron-stone.—Smoky River, seventeen miles above Little Smoky River, N.W.T.—Coll., G. M. Dawson, 1880.—Cretaceous, K. (2136.)
  - Quesnel, B.C.—Coll., G. M. Dawson.—Tertiary, L. (2096.)
  - Baynes Sound nine, Comox, Vancouver Island, B.C.—Coll., J. Richardson, 1872.—Cretaceous, K. (2088.)
  - Cowgitz, Skidegate Inlet, Queen Charlotte Islands, B.C.—Coll., J. Richardson, 1872.—Cretaceous, K. (2080.)
  - Nicholson's tunnel, Cowgitz, Skidegate Inlet, Queen Charlotte Islands, B.C.—Coll., J. Richardson, 1872.—Cretaceous, K. (2081.)
  - Coal mine, Skidegate Inlet, Queen Charlotte Islands, B.C.—Coll.,
     J. Richardson, 1872.—Cretaceous, K. (2084.)
  - Queen Charlotte Islands, B.C.—Coll., J. Richardson, 1872.—Cretaceous, K. (2087.)

#### Ilmenite or Titanic Iron.

Upright table-case

Titanic iron ore.—Rapid River, Bay of Seven Islands, Saguenay county, Q.—Coll., T. Sterry Hunt, 1868.—Laurentian, A. (2045.)

- (with rutile).—St. Urbain, Bay St. Paul, Charlevoix county, Q.— Laurentian, A. (2035.)
- St. Urbain, Bay St. Paul, Charlevoix county, Q.—Laurentian, A. (2044.)
- St. Irénée, seigniory of Malbaie, Charlevoix county, Q.—Laurentian, A. (4640.)
- Château Richer, Montmorency county, Q.—Coll., W. E. Logan, 1852.—Laurentian, A. (2036.)
- St. Julien, township of Rawdon, Montcalm county, Q.—Laurentian,
   A. (2039.)
- Lot 7, range I. of Wexford, Terrebonne county, Q.—Laurentian, A. (2123.)
  - Thirty miles from St. Jerôme, Terrebonne county, Q.—Laurentian, A.—(2034.)
- Lot 1, range III. of Brome, Brome county, Q.—Pre-Cambrian, B? (2040.)
- Lot 1, range I. of Brome, Brome county, Q.—Pre-Cambrian, B? (2041.)
- Lot 2, range III. of Brome, Brome county, Q.—Pre-Cambrian, B? (2042.)
- Lot 3, range VII. of Sutton, Brome county, Q.—Pre-Cambrian, B? (3660.)
- Lot 6, range IX. of Sutton, Brome county, Q.—Pre-Cambrian, B? (2043.)
- Lot 7, range IX. of Sutton, Brome county, Q.—Pre-Cambrian, B? (2046.)

Specimens of iron ore from some of the more important deposits are shown in upright wing-cases 4 and 5.

# MINERAL ASSOCIATIONS OF MAGNETITE, HEMATITE AND LIMONITE.

# Magnetite in association with Titaniferous Iron.

magnetite in a	ssociation with Titaniferous from.	
	John River, Mingan, seigniory of Mingan, Saguenay (1980.)	Upright table-case
	Magdalen Islands, Q.—Coll., J. Richardson, 1881.	33.— Continued.
	nay county, Q. (1982.)	
	iory of Mille Vaches, Saguenay county, Q. (1983.)	
— Moisie, Saguena	y county, Q. (1984.)	
<ul> <li>— Moisie, Saguena</li> </ul>	y county, Q.—(washed). (1985.)	
- Batiscan, Cham	plain county, Q. (1981.)	
	Toronto Bay, York county, O. (2117.)	
R. Bell, 1	le Whale River, east coast of Hudson Bay.—Coll., 1877. (2118.)	
Magnetite, titaniferous.—S	t. François, three miles north-east of the Chaudière River and half a mile from St. Joseph, Beauce county, Q.—Cambrian, C. (1967.)	
Lot	23, range VII. of Shawenegan, St. Maurice county, Q.—Coll., R. W. Ells, 1880.—Laurentian, A. (3648.)	
Eas	t half of lot 6, range X. of Fitzroy, Carleton county, O.—Laurentian, A. (2119.)	Upright table-case
— — Eas	t half of lot 6, range X. of Fitzroy, Carleton county, O.—Laurentian, A. (2121.)	34.
Lot	2 or 3, range XII. of Fitzroy, Carleton county, O.—Coll., H. G. Vennor.—Laurentian, A. (2122.)	
We	st corner of lot 5, range XII. of Fitzroy, Carleton county, O.—Laurentian, A. (2120.)	
— — Silv	er Lake, South Sherbrooke, Lanark county, O.—Coll., H. G. Vennor, 1874.—Laurentian, A. (1938.)	
— wit	h pyrite.—Chaffey mine, lot 26, range VI. of South Crosby, Lanark county, O.—Coll., B. J. Harring- ton, 1873.—Laurentian, A. (1963.)	
— • . — Cha	affey mine, lot 26, range VI. of South Crosby, Lanark county, O.—Coll., B. J. Harrington, 1883.— Laurentian, A. (1964.)	
— — Yan	akee mine, South Crosby, Lanark county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1970.)	
Fold	ey mine, lot 10, range VIII. of Bathurst, Lanark county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1926.)	
— with	in calcite, apatite and mica.—Foley mine, lot 10, range VIII. of Bathurst, Lanark county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1937.)	
with	n apatite and calcite.—Foley mine, lot 10, range VIII. of Bathurst, Lanark county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1957.)	
- with	n apatite.—McVeigh lot, lot 11, range VIII. of Bathurst. Lanark county, O.—Coll., B. J. Har- rington, 1873.—Laurentian, A. (1925.)	
with	calcite.—McVeigh lot, lot 11, range VIII. of Bathurst, Lanark county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1927.)	
with	h hornblende.—McVeigh lot, lot 11, range VIII. of Bathurst, Lanark county, O.—Coll., B. J. Har- rington, 1873.—Laurentian, A. (1933.)	
	R	

# MINERAL ASSOCIATIONS OF MAGNETITE, HEMATITE AND LIMONITE—Continued.

### Magnetite, mineral associations of.

Upright table-case 34.—

Magnetite, in chloritic schist.—Lot 6, range VI. of Sutton, Brome county, Q.—Pre-Cambrian, B? (1950.)

— and hematite.—Lot 7, range V. of Leeds, Megantic county, Q.— Pre-Cambrian, B? (1965.)

and garnet.—Lot 3, range V. of Grenville, Argenteuil county, Q.—
 Coll., B. J. Harrington, 1878.—Laurentian, A. (1941.)

- with hematite, pyrite, graphite and steatite.—Forsyth mine, lot 11, range VII. of Hull, Ottawa county, Q.—Laurentian, A. (1904.)
- with hematite and graphite (red ore).—Forsyth mine, lot 11, range
   VII. of Hull, Ottawa county, Q.—Laurentian, A. (1905.)
- with graphite and hornblende.—Forsyth mine, lot 11, range VII. of Hull, Ottawa county, Q.—Laurentian, A. (1910.)
- Mica, calcite, pyroxene and graphite.—Baldwin mine, lot 13, range VI. of Hull,
  Ottawa county, Q.—Coll., B. J. Harrington, 1880.—Laurentian, A. (1907.)
- Magnetite, with graphite.—Lots 39 and 40, range II. of Cameron, Ottawa county, Q.—Coll., H. G. Vennor, 1876.—Laurentian, A. (2114.)
  - with orthoclase and epidote.—Bristol mine, lot 21, range II. of
    Bristol, Pontiac county, Q.—Coll., S. Barlow, 1891.—Laurentian, A. (2723.)
  - with mica schist.—Lot 22, range II. of Bristol, Pontiac county, Q.
     —Coll., B. J. Harrington, 1873.—Laurentian, A. (1912.)
  - and pyrite.—Wilbur mine, lot 4, range XII. of Lavant, Lanark county, O.—Coll., E. Coste, 1884.—Laurentian, A. (5624.)
- Hornblende and pyrite.—Fournier mine, lot 14, range I. of South Sherbrooke, Lanark county, O.—Coll. B. J. Harrington, 1873.—Laurentian, A. (4641.)
- Magnetite, felspar and hornbleude.—Fournier mine, lot 14, range I. of South Sher'orooke, Lanark county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1928.)
- Hornblende and mica.—Fournier mine, lot 14, range I. of South Sherbrooke, Lanark county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1929.)
- Diorite.—Fournier mine, lot 14, range I. of South Sherbrooke, Lanark county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1932.)
- Magnetite, with hornblende and mica.—Fournier mine, lot 14, range I. of South Sherbrooke, Lanark county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1961.)

Upright table-case 35.

- Hornblende, with magnetite.—Bygrove mine, lot 3, range I. of South Sherbrooke, Lanark county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1939.)
- Labradorite rock, with magnetite.—Chaffey mine, lot 26, range VI. of South Crosby, Leeds county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1962.)
- Serpentine and calcite.—Chaffey mine, lot 26, range VI. of South Crosby, Leeds county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1978.)
- Labradorite rock.—Yankee mine, South Crosby, Leeds county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1972.)
- Magnetite, with chalcopyrite.—Lot 7, range II. of Escott, Leeds county, O.—Coll., A. Murray, 1851.—Laurentian, A. (1949.)

# MINERAL ASSOCIATIONS OF MAGNETITE, HEMATITE AND LIMONITE—Continued.

Magnetite, mineral associations of—Continued.

Hornblende, with magnetite.—Howse mine, lot 4, range I. of Bedford, Frontenac county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1973.)

Upright table-case 35.—

- Gneiss.—Howse mine, lot 4, range I. of Bedford, Frontenac county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1975.)
- Magnetite, with pyroxene.—Howse mine, lot 4, range I. of Bedford, Frontenac county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1977.)
  - with serpentine.—Thirty Island Lake, lot 6, range III. of Bedford,
     Frontenac county, O.—Coll., C. W. Willimott, 1883.—
     Laurentian, A. (3659.)
- Serpentine and calcite.—Thirty Island Lake, lot 6, range III. of Bedford, Frontenac county, O.—Coll., C. W. Willimott, 1883.—
- Laurentian, A. (4605.)

  Magnetite, with steatite.—Lot 3, range V. of Elzevir, Hastings county, O.—Coll., H. G. Vennor, 1872.—Laurentian, A. (1943.)
  - with mica.—Seymour ore bed, lot 11, range V. of Madoc, Hastings county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1920.)
  - with actinolite.—Seymour ore bed, lot 11, range V. of Madoc, Hastings county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1922.)
  - with uran ochre.—Seymour ore bed, lot 11, range V. of Madoc, Hastings county, O.—Coll., B. J. Harrington, 1873.— Laurentian, A. (1923.)
  - with actinolite and steatite.—Seymour ore bed, lot 11, range V. of Madoc, Hastings county, O.—Coll., B. J. Harrington, 1873. Laurentian, A. (1924.)
  - with vein of quartz and actinolite.—Seymour ore bed, lot 11, range
     V. of Madoc, Hastings county, O.—Coll., B. J. Harrington,
     1874.—Laurentian, A. (1971.)
  - with hematite.—Cook and Thompson mine, lot 15, range V. of Madoc, Hastings county, O.—Coll., E. Coste, 1884.— Laurentian, A. (5717.)
  - with hematite.—Moore mine, lot 17, range V. of Madoc, Hastings county, O.—Coll., E. Coste, 1884.—Laurentian, A. (5594.)
    - with fluorite and pyrite.—Lot 26, range VIII. of Marmora, Hastings county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1986.)
  - with spathic iron and chalcopyrite.—Lot 6, range VIII. of Marmora, Hastings county, O.—Coll. B. J. Harrington, 1873.—Laurentian, A. (1987.)
  - with pyrite and chalcopyrite.—Lot 6, range VIII. of Marmora, Hastings county, O.—Coll., B. J. Harrington, 1873.— Laurentian, A. (1988.)
  - with felspar.—Lot 6, range VIII. of Marmora, Hastings county, O.
     —Coll., B. J. Harrington, 1873.—Laurentian, A. (1989.)
  - with pyroxene.—Big ore bed, lot 8, range I. of Belmont, Peter borough county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1915.)
  - with serpentine.—Big ore bed, lot 8, range I. of Belmont, Peter borough county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1916.)

## MINERAL ASSOCIATIONS OF MAGNETITE. HEMATITE AND LIMONITE-Continued.

## Magnetite, mineral associations of-Continued.

Upright table-case 35.-Continued.

Magnetite with pyrite.—Big ore bed, lot 8, range I. of Belmont, Peterborough county, O.—Coll., B. J. Harrington, 1873.— Laurentian, A. (1918.)

Asbestus.—Big ore bed, lot 8, range I. of Belmont, Peterborough county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1919.)

Magnetite with jasper.—Batchehwahnung Bay, Lake Superior, O.—Coll., R. Bell, 1860.—Huronian, B. (2115.)

pyrite and jasper. - Batchehwahnung Bay, Lake Superior, O .- Coll., R. Bell, 1860.—Huronian, B. (2116.)

#### Hematite, mineral associations of.

Upright table-case 36.

Göthite, hematite and calcite. - Mouth of the Shubenacadie River, Colchester county, N.S.—Coll., B. J. Harrington, 1873.—Carboniferous, G 1. (2004.)

Hematite and calcite. - Mouth of the Shubenacadie River, Colchester county, N.S.—Coll., B. J. Harrington, 1873.—Carboniferous, G 1. (2013.)

Barite, calcite and hematite. - Mouth of the Shubenacadie River, Colchester county, N.S.-Coll., B. J. Harrington, 1873.-Carboniferous, G 1. (2015.)

Oxide of manganese.—Area 46, East River, Pictou county, N.S. Coll., B. J. Harrington, 1873. (2057.)

Specular iron ore with pyrite.—Area 100, East River, Pictou county, N.S.—Coll., B. J. Harrington, 1873.—Silurian, E. (2001.)

Slate with hematite. - Area 101, East River, Fictou county, N.S. - Coll., B. J. Harrington, 1873.—Silurian, E. (2011.)

Ankerite.—Area 101, near Websters, East River, Pictou county, N.S.—Coll., B. J. Harrington, 1873.—Silurian, E. (5794.)

Calcite.—Peter Totten lot, Acadia Mines, Londonderry, Colchester county, N.S. -Coll., B. J. Harrington, 1873.—Cambro-Silurian, D. (2021.)

Specular iron ore and limonite. - Martin's Brook, Acadia Mines, Londonderry,

Colchester county, N.S.—Cambro-Silurian, D. (2016.)

Ankerite.—Acadia Mines, Londonderry, Colchester county, N.S.—Coll., B. J. Harrington, 1873.—Cambro-Silurian, D. (2093.)

with barite, calcite and micaceous iron ore. - New Mines, Londonderry, Colchester county, N.S.—Coll., A. E. Barlow, 1884.— Cambro-Silurian, D. (4858.)

Hematite and limonite. - Near Clifton (formerly Old Barns), Colchester county, N.S.—Coll., B. J. Harrington, 1873.—Carboniferous, G 1. (4642.)

Specular iron ore, with orthoclase. Haycock mine, lot 28, range VI. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1873.— Laurentian, A. (1991.)

with orthoclase, fluorite and calcite.—Haycock mine, lot 28, range VI. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1992.)

with calcite and pyroxene.—Haycock mine, lot 28, range VI. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1873.—Laurentian, A. (2000.)

penetrated by crystals of pyroxene. Haycock mine, lot 28, range VI. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1873.—Laurentian, A. (2023.)

# MINERAL ASSOCIATIONS OF MAGNETITE, HEMATITE AND LIMONITE—Continued.

### Hematite, mineral associations of-Continued.

Specular iron ore, with apatite.—Lot 10, range VII. of North Burgess, Lanark county, O.—Coll., H. G. Vennor, 1871.—Laurentian, A. (2002.)

Upright table-case 36.—

Hematite with magnetite.—Moore mine, lot 17, range V. of Madoc, Hastings county, O.—Coll., E. Coste, 1884.—Laurentian, A. (5595.)

36.— Continued.

### Limonite, mineral associations of.

- Limonite, with barite.—Fraser Saddler area (46), East River, Pictou county, N.S.—Coll., B. J. Harrington, 1873. (2049.)
  - with quartzite.—Martin's Brook, Acadia Mines, Londonderry, Colchester county, N.S.—Coll., B. J. Harrington, 1873.—Cambro-Silurian, D. (2055.)
- Iron ochre.—Martin's Brook, Acadia Mines, Londonderry, Colchester county, N.S.—Coll., B. J. Harrington, 1873.—Cambro-Silurian, D. (2060.)
- Ankerite.—Acadia Mines, Londonderry, Colchester county, N.S.—Coll. B. J. Harrington, 1873.—Cambro-Silurian, D. (2095.)
  - with specular iron ore.—Martin's Brook, Acadia Mines, London-derry, Colchester county, N.S.—Coll., B. J. Harrington, 1873.
     —Cambro-Silurian, D. (2097.)
- Quartzite with veins of ankerite.—Martin's Brook, Acadia Mines, Londonderry, Colchester county, N.S.—Coll., B. J. Harrington, 1873.—Cambro-Silurian, D. (2098.)

### COPPER ORES,

1

#### Copper, native.

Native copper.— Mamainse (Namainse), Lake Superior, district of Algoma, O.—Coll., W. E. Logan, 1846.—Cambrian, C 1. (263.)

Upright wing-case 6.

- Nipigon Bay, Lake Superior, district of Thunder Bay. O.—Coll., W. E. Logan, 1846.—Cambrian, C 1. (265.)
   Ewart's location, Lake Superior, district of Thunder Bay, O.—Coll.,
- W. E. Logan, 1846.—Cambrian, C 1. (267.)

   Michinicoten Island, Lake Superior, district of Thunder Bay, O.—
- Michipicoten Island, Lake Superior, district of Thunder Bay, O.—Coll., W. E. Logan, 1846.—Cambrian, C 1. (285.)
- in sandstone.—Michipicoten Island, Lake Superior, district of Thunder Bay, O.—Presented by W. W. Stuart, 1875.—Cambrian, C 1. (286.)
- nugget, found loose.—British Columbia. (179.)
- From an abandoned working on coast two miles east of the entrance to Sooke Harbour, Vancouver Island, B.C. (5253.)

#### Chalcocite or Vitreous Copper Ore.

Vitreous copper ore (Chalcocite).—From near Salmon River, parish of Alma, Albert county, N.B.—Presented by W. Davidson, 1875.— Pre-Cambrian, A.B. (145.)

### COPPER ORES-Continued.

# Chalcocite or Vitreous Copper Ore-Continued.

Upright wing-case 6.—
Continued.

Vitreous copper ore Grand Manan Island, Charlotte county, N.B.—Coll., L. W. Bailey, 1870.—Triassic, H. (171.)

- From the "American" shaft, Harvey Hill mine, lot 17, range XV. of Leeds, Megantic county, Q.—Coll., C. W. Willimott, 1889.—Pre-Cambrian, B? (173.)
- with purple copper ore.—" Nutbrown" shaft, lot 15, range XIV.
  of Leeds, Megantic county, Q.—Coll., J. Richardson.—PreCambrian, B? (239.)
- Lot 16, range XIV. of Leeds, Megantic county, Q.—Coll., J. Richardson.—Pre-Cambrian, B? (251.)
- Lot 10, range VI. of Halifax, Megantic county, Q.—Pre-Cambrian, B? (215.)

### Bornite or Purple Copper Ore.

Purple copper ore (bornite).—Adam's Island, Passamaquoddy Bay, Charlotte county, N.B.—Coll., L. W. Bailey, 1870.—Pre-Cambrian, A.B. (278.)

- Lot 1, range I. of Wendover, Drummond county, Q.—Coll., J. Richardson, 1865.—Cambrian, C. (178.)
  - Lot 23, range III. of Roxton, Shefford county, Q.—Coll., J. Richardson, 1863.—Cambrian, C. (205.)
- with vitreous copper ore.—Lots 1, 2 and 3, range Ste. Marguerite, seigniory of St. Giles, Lotbinière county, Q.—Coll., J. Richardson, 1866.—Cambrian, C. (217.)
- in steatite.—Harvey Hill mine, lot 17, range XV. of Leeds,
   Megantic county, Q.—Coll., J. Richardson.—Pre-Cambrian, B? (245.)
- with quartz, in dolomite.—Harvey Hill mine, lot 17, range XV- of Leeds, Megantic county, Q.—Pre-Cambrian, B? (252.)
- with copper pyrites.—Harvey Hill mine, lot 17, range XV. of Leeds, Megantic county, Q.—Pre-Cambrian, B? (253.)
- Acton mine, lot 32, range III. of Acton, Bagot county, Q.—Coll.,
   J. Richardson, 1864.—Cambrian, C. (208.)
- in limestone and chert conglomerate.—Acton mine, lot 32, range III. of Acton, Bagot county, Q.—Cambrian, C. (256.)
- Lot 33, range IV. of Acton, Bagot county, Q.—Coll., J. Richardson, 1865.—Cambrian, C. (211.)
- St. Francis mine, lot 25, range XII. of Cleveland, Richmond county, Q.—Coll., J. Richardson, 1862.—Pre-Cambrian, B? (230.)
- with copper pyrites.—Sweet's mine, lot 8, range X. of Sutton, Brome county, Q.—Coll., J. Richardson, 1862.—Pre-Cambrian, B? (241.)
- with copper pyrites.—Bruce Mines, Lake Huron, district of Algoma, O.—Coll., R. Bell, 1860.—Huronian, B. (294.)
- Mamainse (Namainse), Lake Superior, district of Algoma, O.—
   Coll., R. Bell, 1876.—Cambrian, C 1. (262.)
- Mamainse (Namainse), Lake Superior, district of Algoma, O.—
   Coll., W. E. Logan, 1846.—Cambrian, C I. (283.)
- with copper pyrites.—Near the head of Salmon Arm, Jarvis Inlet (between Jarvis Inlet and Howe Sound), B.C.—Coll., G. M. Dawson, 1875. (287.)

### COPPER ORES-Continued.

### Chalcopyrite or Copper Pyrites,

Copper pyrites (chalcopyrite).—Coxheath copper mine, Coxheath, Cape Breton county, N.S.—Presented by Isaac P. Gragg, manager, Eastern Development Company, 1886.—Pre-Cambrian, A.B. (5538.)

Upright wing-case

- Polson's Lake, Antigonish county, N.S.—Presented by H. S. Poole, 1875.—Devonian, F. (257.)
- with magnetic pyrites.—Lochaber Lake, Antigonish county, N.S.
  —Presented by James Hudson, 1875.—Devonian, F. (258.)
- Bissonette's mine, lot 49, range XX. of Upton, Drummond county, Q.—Coll., J. Richardson.—Cambro-Silurian, D. (204.)
- with purple copper ore.—Wickham mine, lot 15, range X. of Wickham, Drummond county, Q.—Coll., J. Richardson.—Cambrian, C. (206.)
- Durham mine, lot 21, range VII. of Durham, Drummond county, Q.—Coll., J. Richardson, 1864.—Cambrian, C. (207.)
- Lot 1, range I. of Wendover, Drummond county, Q.—Coll., J. Richardson.—Cambrian C. (221.)
- with purple ore.—Nicolet Branch mine, lot 28, range IV. of Ham, Wolfe county, Q.—Coll., J. Richardson, 1861.—Pre-Cambrian, B? (209.)
- with iron pyrites.—Lot 22, range I. of Garthby, Wolfe county, Q. -Coll., J. Richardson, 1849.—Pre-Cambrian, B? (218.)
- Harvey Hill mine, lot 17, range XV. of Leeds, Megantic county, Q.—Coll., C. W. Willimott, 1882.—Pre-Cambrian, B? (170.)
- Belvidere mine, lot 10, range IX. of Ascot, Sherbrooke county, Q .-Coll., J. Richardson, 1864.—Pre-Cambrian, B? (220.)
- Lot 15, range VII. of Ascot, Sherbrooke county, Q.—Coll., J. Richardson.—Pre-Cambrian, B? (223.)
- Ascot mine, Haskell Hill, west half of lot 8, range VIII. of Ascot, Sherbrooke county, Q.—Coll., J. Richardson, 1866.—Pre-Cambrian B? (234.)
- Capel mine, lot 4, range VIII. of Ascot, Sherbrooke county, Q.-Coll., J. Richardson, 1866.—Pre-Cambrian, B? (236.)
- Lot 9, range XVIII. of Orford, Sherbrooke county, Q.—Coll., J. Richardson, 1866.—Cambrian, C. (224.)
- with purple copper ore.—Black River mine, St. Flavien, Lotbinière
- county, Q.—Coll., W. E. Logan, 1861.—Cambrian C. (212.)

  Lot 2, range IV. of Brome, Brome county, Q.—Presented by W.
  W. Stuart, 1875.—Pre-Cambrian, B? (243.)
- Huntingdon mine, lot 8, range VIII. of Bolton, Brome county, Q.— Coll., J. Richardson, 1863.—Cambrian, C. (249.)
- East half of lot 14, range XI. of Beckwith, Lanark county, O .- Presented by J. L. McNeely, 1886.—Cambrian, C 2. (5336.)
- Lot 6, range VII. of Lavant, Lanark county, O.-Coll., H. G. Vennor, 1873.—Laurentian, A. (279.)
- Lot 2, range IX. of North Burgess, Lanark county, O.—Coll., H. G. Vennor, 1873.—Laurentian, A. (301.)
- Lot 1, range V. of North Elmsley, Lanark county, O.—Coll., H. G. Vennor.—Laurentian, A. (250.)
- Gananoque Lake, Leeds, Leeds county, Q.—Coll., A. Murray, 1850. Loose. (276.)
- Lot 7, range II. of Escott, Leeds county, O.—Coll., A. Murray, 1850.—Laurentian, A. (288.)

### COPPER ORES-Continued.

### Chalcopyrite or Copper Pyrites-Continued.

Upright wing-case 7.—
Continued.

Copper pyrites - West half of lot 2, range IX. of Palmerston, Frontenac county, O.—Presented by G. Oliver, 1875.—Laurentian, A. (308.)

- Murray mine, lot 11, range V. of McKim, district of Nipissing,
   O.—Coll., A. R. C. Selwyn, 1884.—Huronian, B. (5062.)
  - Worthington mine, lot 2, range II. of Drury, district of Algoma, O.
     Coll., A. E. Barlow, 1891.—Huronian, B. (5063.)
- with magnetic pyrites.—Copper Cliff mine, lot 12 range II. of
  McKim, district of Nipissing, 0.—Presented by W. C. Van
  Horne, 1887.—Huronian, B. (5418.)
- Evan's mine, lot 1, range I. of Snider, district of Algoma, O.— Coll., A. R. C. Selwyn, 1888.—Huronian, B. (5710.)
- Bruce mines, Lake Huron, district of Algoma, O.—Coll., R. Bell, 1860.—Huronian, B. (5426.)
- Wallace mining location, about one mile west of the mouth of Whitefish River, Lake Huron, district of Algoma, O.—Coll., R. Bell, 1860.—Huronian, B. (298.)
- Huron Copper Bay mining location, Lake Huron, district of Algoma, O.—Coll., R. Bell, 1860.—Huronian, B. (293.)
- Rankin mine, eastern shaft, Emerald mining location, Root River, district of Algoma, O.—Coll., A. Murray, 1860.—Huronian, B. (291.)
- -- Rankin mine, western shaft, Emerald mining location, Root River, district of Algoma, O.—Coll., A. Murray, 1860.—Huronian, B. (299.)
- Lot A, north side of Echo Lake, district of Algoma, O.—Presented by G. F. Austin, 1882.—Huronian, B. (300.)
- Keating's location, Lake Huron, district of Algoma, O.—Coll., A.
   Murray, 1847.—Huronian, B. (303.)
- Wellington mine, Lake Huron, district of Algoma, O.—Coll., R. Bell, 1860.—Huronian, B. (307.)
- Portlock Harbour, Lake Huron, district of Algoma, O.—A.
   Murray, 1860.—Huronian, B. (971.)
- Pointe aux Mines, Lake Superior, district of Algoma, O.—Coll., W.
   E. Logan, 1846.—Cambrian, C 1. (259.)
- Mamainse (Namainse), Lake Superior, district of Algoma, O.—Coll.,
   W. E. Logan, 1846.—Cambrian, C. (273.)
- McKellar's mine, about a mile and a half north-west of the mouth
  of Little Pic River, Lake Superior, district of Thunder Bay, O.
   Coll., R. Bell, 1875.—Huronian, B. (99.)
- with iron pyrites.—Copper claim opposite 49 Creek, Kootanie River, B.C.—Presented by J. A. Mara, 1890. (5261.)
- Malaspina mine, north-east side of Texada Island, B.C.—Coll., G.
   M. Dawson, 1885. (5279.)

# SPECIMENS ILLUSTRATING THE DISTRIBUTION OF COPPER ORES.

### Copper, native.

Table-case Native copper.—Two Islands, Cumberland county, N.S.—Coll., Scott Barlow, 39. 1875.—Triassic, H. (3676.)

Horseshoe Cove, Cape d'Or, Cumberland county, N.S.—Coll., C.
 W. Willimott, 1888.—Triassic H. (5659.)

### Copper, native-Continued.

Native copper—Bennet's Brook, east of Horseshoe Cove, Cumberland county, N.S.—Coll., C. W. Willimott, 1888.—Triassic, H.—(5660.) Continued.

Tablescase 39

- Mamainse (Namainse), Lake Superior, district of Algoma, O .-Coll., W. E. Logan, 1846.—Cambrian, C 1. (3414.)
- in amygdaloid.—Mamainse (Namainse), Lake Superior, district of Algoma, O.—Coll., W. E. Logan, 1846.—Cambrian, C 1. (3415.)
- in volcanic ash.—Michipicoten Island, Lake Superior, district of Thunder Bay, O.—Coll., A. R. C. Selwyn, 1883. (3595.)
- Eleven mile Creek, above Lillooet, east side of Fraser River, B.C. -Presented by Mr. Soues, 1890. (5228.)
- from sluice boxes.—Fraser River, a few miles above Stein Creek, B.C.—Presented by J. W. Mackay, 1890. (5938.)
- from placer mines, Thibert's Creek, Cassiar, B.C.-Coll., G. M. Dawson, 1885. (5557.)
- from placer mines near Vermilion Forks, Similkameen River, B.C. -Coll., G. M. Dawson, 1888. (5782.)
- from an abandoned working near Sooke, Vancouver Island, B.C .-(5254.)

### Chalcocite or Vitreous Copper Ore.

- Vitreous copper ore (chalcocite).—Minudie, Cumberland county, N.S.—Coll., S. Barlow, 1875.—Carboniferous, G. (4634.)

   Pugwash River, Cumberland county, N.S.—Presented by E. A. Black, 1884.—Carboniferous, G. (4821.)
  - French River, New Annan, four miles south of Tatamagouche, Colchester county, N.S.—Coll., R. W. Ells, 1884.—Carboniferous, G. (1209.)
  - Alma, Albert county, N.B.—Presented by W. Davidson, 1875.— Pre-Cambrian, A.B. (3572.)
  - McKinley's mine, Alma, Albert county, N.B.—Coll., R. W. Ells, 1877.—Pre-Cambrian, A.B. (3593.)
  - Dorchester, Westmoreland county, N.B.—Presented by J. W. Revere.—Carboniferous, G. (3581.)
  - with green carbonate and coal. Colonial copper mine, Dorchester, Westmoreland county, N.B.-Coll., R. W. Ells, 1881.-Carboniferous, G. (3677.)
  - with green carbonate, in conglomerate.—Colonial copper mine, Dorchester, Westmoreland county, N.B.-Coll., R. W. Ells, · 1884.—Carboniferous, G. (3680.)
  - with green carbonate. Grand Manan Island, Charlotte county, N.B.—L. W. Bailey, 1870.—Triassic, H. (3587.)
  - Simpson's Island, Passamaquoddy Bay, Charlotte county, N.B.—Coll., L. W. Bailey, 1870.—Pre-Cambrian, A.B. (3583.)
  - St. Caroline mine, River Etchemin, St. Clair, Dorchester county, Q.—Coll., A. R. C. Selwyn, 1877.—Cambrian, C. (4631.)
  - Lots 1, 2 and 3, range Ste. Marguerite, Lotbinière county, Q. Coll., J. Richardson, 1866.—Pre-Cambrian, B? (3573.)
  - Lot 10, range V1. of Halifax, Megantic county, Q.—Coll., J. Richardson, 1866. -Pre-Cambrian, B? (3574.)

## Chalcocite or Vitreous Copper Ore-Continued.

Table-case	Vitreous copper	ore—American shaft,	Harvey	Hill mine,	lot 17,	range XV.
39. Continued		of Leeds, Megantic 1889.—Pre-Cambrian	county.	$Q_{\cdot}$ –Con.,	C. W.	Willimott,

- Lot 18, range XV. of Leeds, Megantic county, Q.—Coll., C. W. Willimott, 1882.—Pre-Cambrian, B? (3570.)
- Lot 15, range XIV. of Leeds, Megantic county, Q.—Pre-Cambrian, B? (3571.)
- argentiterous.—Mamainse (Namainse), Lake Superior, district of Algoma, O.—Presented by W. W. Stuart, 1882.—Cambrian, C.l. (3576.)
- Mamainse (Namainse), Lake Superior, district of Algoma, O.—Presented by H. R. Fletcher, 1860.—Cambrian, C 1. (3577.)
- with blue and green carbonate.—First or southern shaft, Mamainse (Namainse), Lake Superior, district of Algoma, O.—Coll., W. E. Logan, 1860.—Cambrian, C 1. (3675.)
- Pointe aux Mines, Lake Superior, district of Algoma, O.—Coll., W.
   E. Logan, 1846.—Cambrian, C 1. (3513.)
- with purple copper ore and green and blue carbonate.—Prince's location, Spar Island, Lake Superior, district of Thunder Bay, O.—Coll., W. E. Logan, 1846.—Cambrian, C 1. (3575.)
- argentiferous.—Spar Island, Lake Superior, district of Thunder Bay, O.—Cambrian, C 1. (3578.)
- St. Ignace Island, Lake Superior, district of Thunder Bay, O.—
   Coll., W. E. Logan, 1846.—Cambrian, C 1. (3579.)
- with native silver.—Harrison's location, St. Ignace Island, Lake Superior, district of Thunder Bay, O.—Coll., W. E. Logan, 1846.—Cambrian, C1. (3590.)
- Sheppard's location, east end of St. Ignace Island, Lake Superior, district of Thunder Bay, O.—Coll., W. E. Logan, 1846.— Cambrian, C 1. (4633.)
- Point Porphyry, Lake Superior, district of Thunder Bay, O.—Coll., W. E. Logan, 1846.—Cambrian, C 1. (3596.)
- with purple copper ore and blue and green carbonate.—Brisco
  Range, opposite lower end of Upper Columbia Lake, Rocky
  Mountains, B.C. (5083.)
- with copper pyrites and green carbonate.—One mile north-west of Silver City, Rocky Mountains, district of Alberta, N.W.T.— Presented by D. B. Woodworth. (5138.)

### Bornite or Purple Copper Ore.

Table-case Purple copper ore (bornite).—Adam's Island, Charlotte county, N.B.—Coll., 40. L. W. Bailey, 1870.—Pre-Cambrian, A.B. (3557.)

- Waters' mine, Alma, Albert county, N.B.—Coll., R. W. Ells, 1877.
  —Pre-Cambrian, A.B. (3597.)
- Indian Island, north side of the entrance of Hamilton Inlet, Labrador.—Coll., R. Bell, 1884. (3585.)
- Lot 2, range IV. of Inverness, Megantic county, Q.—Coll., J. Richardson, 1847.—Pre-Cambrian, B? (3558.)
- Harvey Hill mine, lot 17, range XV. of Leeds, Megantic county,
   Q.—Pre-Cambrian, B? (3569.)

### Bornite or Purple Copper Ore—Continued.

Purple copper ore, with dolomite and quartz.—Harvey Hill mine. lot 17, Table range XV. of Leeds, Megantic county, Q.—Pre-Cambrian, B? 40 Cont

Table-case 40. Continued.

- with copper pyrites.—Harvey Hill mine, lot 17, range XV. of Leeds, Megantic county, Q.—Coll., C. W. Willimott, 1882. Pre-Cambrian, B? (3555.)
- in mica schist.—Harvey Hill mine, lot 17, range XV. of Leeds, Megantic county, Q.—Pre-Cambrian, B? (3562.)
- Nicolet Branch mine, lot 28, range IV. of Ham, Wolfe county, Q.—
   Coll., W. E. Logan, 1862.—Pre-Cambrian, B? (3560.)
- Lot 25, range XII. of Cleveland, Richmond county, Q.—Coll., J. Richardson, 1863.—Pre-Cambrian, B? (3512.)
- Lot 33, range IV. cf Acton, Bagot county, Q.—Coll., J. Richardson, 1863.—Cambrian, C. (3564.)
- Lot 8, range X. of Sutton, Brome county, Q.—Coll., J. Richardson, 1863.—Pre-Cambrian, B? (3658.)
- Galt's mine, Orford, Sherbrooke county, Q.—Coll., C. W. Willimott, 1882.—Cambrian, C. (3561.)
- Bruce Mines, Lake Huron, district of Algoma, O.—Coll., R. Bell, 1860.—Huronian, B. (3567.)
- Keating's location, Lake Huron, district of Algoma, O.—Coll., A. Murray, 1847.—Huronian, B. (4629.)
- Begley mine, north shore of Batchehwahnung Bay, Lake Superior, districtof Algonia, O.—Coll., T. Macfarlane, 1865.—Huronian, B. (3565.)
- Township of Tupper, district of Algoma, O.—Huronian, B. (4632.)
- with green carbonate.—Wilson's location, about one mile north-east of Batchehwahnung Bay, Lake Superior, district of Algoma, O.—Huronian, B. (4635.)
- Mamainse (Namainse), Lake Superior, district of Algoma, O.—Coll.,
   R. Bell, 1876.—Cambrian, C 1. (3568.)
- First or southern shaft, Mamainse (Namainse), Lake Superior, district of Algoma, O.—Coll., W. E. Logan, 1860.—Cambrian, C 1. (3580.)
- Pointe aux Mines, Lake Superior, district of Algoma, O.—Coll., W.
   E. Logan, 1846.—Cambrian, C. (3584.)

#### Tetrahedrite or Grey Copper.

Grey copper (tetrahedrite).—Fraser River, left bank, twenty-five miles above Lytton, B.C.—Coll., G. M. Dawson, 1888. (5776.)

### Chalcopyrite or Copper Pyrites.

- Copper pyrites (chalcopyrite).—Coxheath copper mine, Coxheath, Cape Breton county, N.S.—Presented by Isaac P. Gragg, 1887.—Pre-Cambrian, A. B. (5539.)
  - with specular iron ore.—Lochaber Lake, Antigonish county, N.S.—
     Coll., A. R. C. Selwyn, 1872.—Devonian, F. (3411.)
  - with magnetic pyrites.—Lochaber Lake, Antigonish county, N.S.—
     Coll., A. R. C. Selwyn, 1872.—Devonian, F. (3420.)

		Chalcopyrite or Copper Pyrites-Continued.
Table-case	Copper py	rites with spathic iron ore.—Polson's Lake, Antigonish county, N.S. Coll., A. R. C. Selwyn, 1872.—Devonian, F. (3419.)
Continued.		Goodfellow's mine, New Ireland, Albert county, N.B.—Coll., R. W. Ells, 1881.—Pre-Cambrian, A. B. (3412.)
	_	Woodstock, Carleton county, N.B.—Coll., C. Robb, 1869. (3413.)
	-	Half a mile west of Crow Harbour Island, Charlotte county, N.B.—Coll., L. W. Bailey, 1870.—Pre-Cambrian, A. B. (3588.)
		Vernon mine, St. Martin's, St. John county, N.B.—Coll., R. W. Ells, 1877.—Pre-Cambrian, A. B. (3592.)
		Black River mine, St. Flavien, Lotbinière county, Q.—Coll., W. E. Logan, 1861.—Cambrian, C. (3426.)
		Harvey Hill mine, lot 17, range XV. of Leeds, Megantic county, Q.—Coll., C. W. Willimott, 1882.—Pre-Cambrian, B? (4636.)
		in chloritoid schist.—Harvey Hill mine, lot 17, range XV. of Leeds, Megantic county, Q.—Pre-Cambrian, B? (3432.)
		with purple copper ore.—Harvey Hill mine, lot 17, range XV. of Leeds, Megantic county, Q.—Pre-Cambrian, B? (3559.)
		Nicolet Branch mine, lot 28, range IV. of Ham, Wolfe county, Q.—Coll., W. E. Logan, 1862.—Pre-Cambrian, B? (3418.)
	-	with iron pyrites.—Lot 22, range I. of Garthby, Wolfe county, Q.—Coll., J. Richardson, 1849.—Pre-Cambrian, B? (3423.)
	-	Lot 21, range VII. of Durham, Drummond county, Q.—Cambrian, C. (3430.)
	-	Lot 9, range X. of Warwick, Arthabaska county, Q.—Coll., J. Richardson, 1863.—Cambrian, C. (3594.)
	_	Lot 9, range XVIII. of Orford, Sherbrooke county, Q.—Coll., J. Richardson, 1866.—Cambrian, C. (3416.)
	Mail 16	Capel mine, south-east quarter of lot 4, range VIII. of Ascot, Sherbrooke county, Q.—Coll., J. Richardson, 1875.—Pre-Cambrian, B? (3417.)
Table-case 41.	_	Suffield mine, lot 3, range XI. of Ascot, Sherbrooke county, Q.—Coll., C. W. Willimott, 1882.—Pre-Cambrian, B? (3433.)
		with grey copper.—Suffield mine, lot 3, range XI. of Ascot, Sher- brooke county, Q.—Coll., C. W. Willimott, 1882.—Pre- Cambrian, B? (3434.)
	_	with grey copper.—Hartford mine, lot 3, range IX. of Ascot, Sherbrooke county, Q.—Coll., J. Richardson, 1876.—Pre-Cambrian, B? (3429.)
	-	with magnetic pyrites, apatite, molybdenite and spathic iron ore.— Lot 3, range VI. of Barford, Stanstead county, Q.—Coll., W. E. Logan, 1847.—Cambro-Silurian, D. (3424.)
	_	Lot 27, range II. of Shefford, Shefford county, Q.—Coll., J. Richardson, 1866.—Cambrian, C. (3427.)
		Lot 2, range IV. of Brome, Brome county, Q.—Presented by W. W. Stuart, 1875.—Pre-Cambrian, B? (3431.)
	_	Huntingdon mine, Lot 8, range VIII. of Bolton, Brome county, Q.—Coll., J. Richardson, 1868.—Cambrian, C. (3650.)
	_	in graphitic shale.—Lot 32, range III. of Acton, Bagot county, Q.—Coll., J. Richardson, 1863.—Cambrian, C. (3678.)
		Lot 14, range XI. of Beckwith, Lanark county, O.—Presented by J. L. McNeely, 1886.—Cambrian, C 2. (5315.)
		Lot I range V of North Elmsley Langely county () Laurentian

Lot 1, range V. of North Elmsley, Lanark county, O.—Laurentian, A. (3437.)

### Chalcopyrite or Copper Pyrites-Continued.

Copper pyrites—Lot 7, range II. of Escott, Leeds county, O.—Coll., A. Murray, 1850.—Laurentian, A. (3439.) Table-case 41 \_ Lake, Hastings county, O.—Presented by W. Shanly, 1875.—

Continued.

- Laurentian, A. (3428.) West half of lot 2, range IX. of Palmerston, Frontenac county, O.—
- Presented by G. Oliver, 1875.—Laurentian, A. (3438.)
- Palmerston, Frontenac county, O.—(Loose). (3673.)
- Lots 14 and 15, range III. of South Canonto, Frontenac county, O. Laurentian, A. (5582.)
- Lot 7, range VI. of Belmont, Peterborough county, O.—Laurentian, A. (248.)
- Copper Cliff mine, lot 12, range II. of McKim. district of Nipissing, O.—Coll., A. E. Barlow, 1890.—Huronian, B. (5956.)
- Murray mine, lot 11, range V. of McKim, district of Nipissing, O. -Coll., A. R. C. Selwyn, 1884.—Huronian, B. (4850.)
- Lot 1, range VI. of Waters, district of Algoma, O.—Coll., R. Bell, 1887.—Huronian, B. (5398.)
- Worthington mine, lot 2, range II. of Drury, district of Algoma, O. -Coll., A. E. Barlow, 1890.—Huronian, B. (3548.)
- with magnetic pyrites. South half of lots 1 and 2, range II. of Drury, district of Algoma, O.—Presented by F. C. Crean, 1885.—Huronian, B. (5064.)
- with magnetic pyrites.—Vermilion mine, lot 6, range IV. of Denison, district of Algoma, O.—Coll., A. E. Barlow, 1890.— Huronian, B. (3582.)
- with magnetic pyrites.—Lots I and 2, range III. of Nairn, district of Algoma, O.—Coll., A. E. Barlow, 1890.—Huronian, B.
- Spanish River, district of Algoma, O.—Coll., A. Murray, 1848.— Huronian, B. (3436.)
- Wallace mine, about one mile west of the mouth of Whitefish River, district of Algoma, O.—Coll., R. Bell, 1860.—Huronian, B. (3553.)
- Straight Lake, south-east side, Moncrieff, district of Algoma, O .-Presented by Isaac Moore, 1887.—Huronian, B. (5447.)
- Falls at the head of Grand Portage, Mississagui River, district of Algoma, O.—Coll., A. Murray, 1857.—Huronian, B. (4637.)
- Huron Copper Bay location, Lake Huron, district of Algoma, O .-Coll., R. Bell, 1860.—Huronian, B. (3440.)
- Bruce Mines, Lake Huron, district of Algoma, O.—Coll., R. Bell, Huronian, B. (3441.)
- with purple copper ore.—Bruce Mines, Lake Huron, district of Algonia, O.—Coll., A. Murray, 1847.—Huronian, B. (3556.)
- Wellington mine, Lake Huron, district of Algoma, O.—Coll., R. Bell, 1875.—Huronian, B. (3422.)
- Keating's location, Lake Huron, district of Algoma, O.—Coll., A. Murray, 1847.—Huronian, B. (3435.)
- Rankin mine, Emerald location, Root River, district of Algoma, O. -Coll., A. Murray, 1860.—Huronian, B. (4638.)
- Lot A, north side of Echo Lake, district of Algoma, O.—Presented by G. F. Austin, 1880.—Huronian, B. (3549.)
- Stobie's location, about two miles north-east of the head of Echo Lake, district of Algoma, O.—Coll., G. F. Lount, 1876.— Huronian, B. (4630.)

# Chalcopyrite or Copper Pyrites-Continued.

Table case
41.—
Continued.

Copper pyrites—Pointe aux Mines, Lake Superior, district of Algoma, O.—
('oll., W. E. Logan, 1846.—Cambrian, C' l. (3425.)

- with galena and zinc blend.—Pointe aux Mines, Lake Superior, district of Algoma, O.—Coll., W. E. Logan, 1846.—Cambrian, C. (3670.)
- Little Pic River, Lake Superior, district of Thunder Bay, O.—Coll., R. Bell, 1875.—Huronian, B. (3551.)
- -- Slate Falls, Slate River, district of Thunder Bay, O.—Cambrian, C 1. (3589.)
- Prince's location, Spar Island, Lake Superior, district of Thunder Bay, O.—Coll., W. E. Logan, 1846.—Cambrian, C 1. (3552.)
  - Rat Portage, district of Rainy River, O.—Presented by F. Fooks, 1882.—Archean, A.B. (3550.)
- British Columbia Copper Company's mine, South Similkameen
  River, east bank, six miles above the mouth of Whip-saw
  Creek, B.C. (5734.)
- Malaspina mine, north-east side of Texada Island, B.C.—Coll., G.
   M. Dawson, 1885. (5278.)

Specimens of copper ore from the more important deposits are shown in upright wing-cases 6 and 7.

# II.—MINERALS APPLICABLE TO CERTAIN CHEMICAL MANUFACTURES.

There having been no available case in which the minerals coming under this heading could be brought together, they have, as indicated below, been unavoidably distributed over several of the other cases.

Apatite (phosphate of lime).

Specimens of apatite from some of the more important deposits are shown in upright wing-case 27.

Specimens illustrating the distribution of apatite are shown in

table-cases 34, and 35 (in part).

Mineral associations of apatite are shown in table-cases 35 (in part) and 36 and in upright table-cases 27 and 28.

Arsenopyrite (sulph-arsenide of iron).

Specimens of mispickel are shown in upright wing-case 3.

Specimens illustrating the distribution of arsenical pyrites are shown in upright table-case 25.

Celestite (sulphate of strontia).

Specimens of this mineral are shown in upright wing-case 20.

Chromic iron ore (chromate of iron).

Specimens of chromite from some of the more important localities of its occurrence are shown in upright wing-case 3.

Specimens illustrating the distribution of this ore are shown in upright table-case 31.

Iron pyrites (bisulphide of iron).

Specimens of pyrite are shown in upright wing-case 3.

Specimens illustrating the distribution of this ore of sulphur are shown in upright table-case 31.

Magnesite (carbonate of magnesia).

Specimens of magnesite are shown in upright wing-case 20.

Manganese ores (oxides of manganese).

Specimens of these ores from the more important localities of their occurrence, are shown in upright wing-case 4.

Specimens illustrating the distribution of the same are shown in upright table-case 31.

Molybdenite (sulphide of molybdenum).

Specimens of molybdenum ore are shown in upright wing-case 3. Specimens illustrating the distribution of molybdenite are shown in upright table-case 31.

Scheelite (tungstate of lime).

Specimens of this mineral are shown in table-case 67 and upright table-case 44.

# III.—MINERALS USED IN THE PRODUCTION OF LIGHT AND HEAT.

### COAL SERIES.

#### Peat.

Peat.—Island of Anticosti, Q.—Post-Tertiary, M 3. (Alluvium). (475.)

St. Hubert, Chambly county, Q.—Post-Tertiary, M 3. (Alluvium).

Lapigeonnière, Napierville, Chambly county, Q.—Post-Tertiary, M
 3. (Alluvium). (477.)

- -- (1). Coke made from peat No. 477 in the charcoal kilns at Lapigeon nière, and used in a smelting trial at the Hull Iron Mines, Ottawa county, Q. (477a.)
- Ste. Brigide, Iberville county, Q.—Post-Tertiary, M 3. (Alluvium). (478.)
- St. Dominique, Bagot county, Q.—Post-Tertiary, M 3. (Alluvium). (479.)

### Lignitified Wood.

Lignitified wood.—Swan River, township 37, range XXVI., west of the initial meridian, Manitoba.—Coll., J. B. Tyrrell, 1887.—Cretaceous, K. (Lower portion of Niobrara-Benton shales). (5545.)

### Lignite.

Lignite.—Missinaibi River, nine miles above the mouth of Opazatika (Poplar)
River, district of Algoma, O.—Coll., R. Bell, 1877.—PostTertiary, M 1. (3466.)

Upright wing-case

### COAL SERIES-Continued.

# Lignite-Continued.

Upright wing-case 8.—
Continued.

Lignite—Coal Brook, below Long Portage, Missinaibi River, district of Algoma, O.—Coll., R. Bell, 1877.—Post Tertiary, M 1. (3467.)

Swan River, Manitoba.—Coll., J. W. Spencer, 1874.—Cretaceous.

- Turtle Mountain, section 12, township 1, range XXIV., west of the initial meridian, Manitoba.—Coll., A. R. C. Selwyn, 1890.—Cretaceo-Tertiary, K-L. (Laramie). (2481.)
- Sutherland's mine, Souris River, one mile west of La Roche Percée, at the junction of Short Creek and Souris River, township 1, range V., west of the 2nd initial meridian, district of Assiniboia, N. W. T. Seam 4'.—Coll., A. R. C. Selwyn, 1878.—Cretaceo-Tertiary, K-L. (Fort Union Laramie). (2577.)

Porcupine Creek, district of Assiniboia, N.W.T. Lower part of 18' seam.—Coll., G. M. Dawson, 1873.—Cretaceo-Tertiary, K. L. (Fort Union Laramie). (3504.)

- Souris River, at Traders Road crossing—sixty-two miles west of Wood End, district of Assiniboia, N.W.T.—Coll., G. M. Dawson, 1873.—Cretaceo-Tertiary, K. L. (Fort Union Laramie). (3505.)
- Souris River, near Wood End Depôt, district of Assiniboia, N.W.T.
   Seam 7'.—Coll., G. M. Dawson, 1873.—Cretaceo-Tertiary, K.
   L. (Fort Union, Laramie). (3507.)
- Short Creek, Souris Valley, district of Assiniboia, N.W.T. Lowest and 2'3" seam.—Coll., G. M. Dawson, 1873.—Cretaceo-Tertiary, K. L. (Fort Union Laramie). (3508.)
  - Great Valley, district of Assiniboia, N.W.T. Seam 5'.—Coll., G. M. Dawson, 1873.—Cretaceo-Tertiary, K. L. (Fort Union Laramie). (3500.)
- -- Souris Valley, district of Assiniboia, N.W.T. Seam 1'.—Coll., G. M. Dawson, 1873.—Cretaceo-Tertiary, K. L. (Fort Union Laramie). (3501.)
- Souris Valley, district of Assiniboia, N.W.T. Seam 1'5".—Coll.,
   G. M. Dawson, 1873.—Cretaceo-Tertiary, K. L. (Fort Union Laramie). (3502.)
- Souris Valley, district of Assiniboia, N.W.T. Seam 3' 2".—Coll.,
   G. M. Dawson, 1873.—Cretaceo-Tertiary, K. L. (Fort Union Laramie). (3503.)
- Dirt Hills, about one hundred miles south-west of Fort Qu'Appelle, district 'of Assiniboia, N.W.T.—Coll., R. Bell, 1873.—Cretaceo-Tertiary, K. L. (Fort Union Laramie) (1018.)
- Dirt Hills, quarter way up East Bluff, district of Assiniboia, N.W.
   T. Seam 3'.—Coll., R. Bell, 1873.—Cretaceo-Tertiary, K. L.
   (Fort Union, Laramie). (1019.)
- Hay Flat, Wood Mountain, ten and a half miles east of Wood Mountain Post, district of Assiniboia, N.W.T. Seam 6'.—Coll., R. G. McConnell, 1884.—Cretaceo-Tertiary, K. L. (Laramie). (5113.)
- White Mud River, district of Assiniboia.—Coll., R. G. McConnell, 1883.—Tertiary, L 1. (Eocene). (4906, 4907.)
- Ross Coulée, Irvine, at Cypress trail crossing, district of Assiniboia, N.W.T.—Coll., R. G. McConnell, 1881.—Cretaceous, K. (base of Pierre). (923.)
- Half a mile south of Irvine, district of Assiniboia, N.W.T.—Coll., R.
   G. McConnell, 1883.—Cretaceous, K. (base of Pierre). (4913.)

#### Lignite-Continued.

Lignite—On branch of Willow Creek, six miles south-east from head of mountain, Cypress Hills, district of Assiniboia, N.W.T. Seam 4'.—Coll., R. G. McConnell, 1883.—Cretaceo-Tertiary, K-L. (Laramie). (4914.)

Upright wing-case 8.—
Continued.

- From the Saskatchewan Coal Mining and Transportation Company's mine, South Saskatchewan River, north side, seven miles west of Medicine Hat, district of Assiniboia, N.W.T. Main seam—seam about 5' thick.—Presented by D. B. Woodworth, 1884.—Cretaceous, K. (Belly River series). (902.)
- South Saskatchewan River, ten miles below Medicine Hat, district of Assiniboia, N.W.T.—Coll., R. G. McConnell, 1883.
   —Cretaceous, K. (Belly River series). (4908.)
- Grassy Island, Bow River, district of Alberta, N.W.T. Main seam
   —seam 4' 6".—Coll., G. M. Dawson, 1881.—Cretaceous, K. (base of Pierre). (3445.)
- Grassy Island, Bow River, district of Alberta, N.W.T. Seam above main seam—seam 18".—Coll., G. M. Dawson, 1881.—Cretaceous, K. (3446.)
- Grassy Island, Bow River, district of Alberta, N.W.T. Seam below main seam—seam 8".—Coll., G. M. Dawson, 1881.—Cretaceous, K. (base of Pierre). (3447.)
- Blackfoot Crossing, Bow River, district of Aiberta, N.W.T. Upper part of seam at old opening.—Coll., G. M. Dawson, 1881.—Cretaceo-Tertiary, K-L. (Laramie). (3448.)
- Blackfoot Crossing, Bow River, district of Alberta, N.W.T. Lower part of seam at old opening.—Coll., G. M. Dawson, 1881.—Cretaceo-Tertiary, K-L. (Laramie). (3449.)
- Blackfoot Crossing, Bow River, district of Alberta, N.W.T. "Conchoidal lignite" occurs in parts of seam at old opening.—Coll.,
   G. M. Dawson, 1881.—Cretaceo-Tertiary, K-L. (Laramie).
   (3450.)
- Bow River, above Blackfoot Crossing, district of Alberta, N.W.T.
   Seam 6".—Coll., G. M. Dawson, 1881.—Cretaceo-Tertiary.
   K-L. (Laramie). (3451.)
- Horseshoe Bend, Bow River, district of Alberta, N.W.T. From upper part of seam—seam 4' 4".—Coll., G. M. Dawson, 1881.—Cretaceous, K. (top of Pierre). (3452.)
- Bow River, seam at the mouth of Highwood River, district of Alberta, N.W.T. Seam 3".—Coll., G. M. Dawson, 1881.—Cretaceo-Tertiary, K-L. (Laramie). (3454.)
- Bow River (from shaft on bank of Crowfoot Creek; about five miles from its entry into Bow River) section 7, township 22, range XX. west of the 4th initial meridian, district of Alberta, N.W.T. Depth of shaft to bottom of coal 135'—seam 9'.—Cretaceo-Tertiary, K-L. (Laramie). (5041.)
- Little Bow River, north of Black Spring Ridge, district of Alberta, N.W.T.—Coll., R. G. McConnell, 1881.—Cretaceo-Tertiary, K-L. (Laramie). (3474.)
- Little Bow River, district of Alberta, N.W.T. Seam 18".—Coll., G. M. Dawson, 1881.—Cretaceous, K. (Belly River series). (3475.)
- Scabby Butte, district of Alberta, N.W.T.--Coll., R. G. McConnell, 1881.—Cretaceo-Tertiary, K-L. (base of Laramie). (921.)
- St. Mary River, district of Alberta, N.W.T. Furtherest exposure of main seam.—Coll., G. M. Dawson, 1881.—Cretaceous, K. (base of Pierre). (3459.)

#### Lignite—Continued.

Upright wing-case S. — Continued.

- Lignite—Rye Grass Flat, Old Man River, district of Alberta, N.W.T. Seam 2" to 3".—Coll., T. C. Weston, 1883.—Cretaceo-Tertiary, K-L. (base of Laramie). (4903.)
  - Near Bull Pound Creek, township 29, range XIII. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 4' 6".—
    Coll., J. B. Tyrrell, 1884.—Cretaceo-Tertiary, K-L. (Laramie). (5092.)
  - Red Deer River, ridge west of Bull Pound Creek, township 28, range XIV. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 1' 6".—Coll., J. B. Tyrrell, 1884.

    —Cretaceo-Tertiary, K-L. (Laramie). (5087.)
  - Near Bull Pound Creek, township 28, range XIV. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 3'.—Coll., J. B. Tyrrell, 1884.—Cretaceo-Tertiary, K-L. (Laramie). (5088, 5089.)
  - Township 36, range XV. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 1'8".—Coll.; J. B. Tyrrell, 1884.
     —Cretaceo-Tertiary, K-L. (Laramie). (5095.)
  - Township 36, range XV. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 2'.—Coll., J. B. Tyrrell, 1884.—Cretaceo-Tertiary, K-L. (Laramie). (5102.)
    - North of Sullivan Lake, township 37, range XV. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 2' 7".—Coll., J. B. Tyrrell, 1884.—Cretaceo-Tertiary, K-L. (Laramie). (5096.)
    - Battle River, section 36, township 40, range XVI. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 5'.—Coll., J. B. Tyrrell, 1885.—Cretaceo-Tertiary, K-L. (Laramie). (5313.)
      - Hand Hills, township 30, range XVII. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 4'6".—Coll., J. B. Tyrrell, 1884.—Cretaceo-Tertiary, K-L. (Laramie). (5093.)
    - Battle River, section 33, township 42, range XVII. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 3' 4".—Coll., J. B. Tyrrell, 1885.—Cretaceo-Tertiary, K-L. (Laramie). (5309.)
  - "The Maples," Battle River, section 18, township 43, range XVII.
    west of the 4th initial meridian, district of Alberta, N.W.T.
    Seam 3' or more.—Coll., J. B. Tyrrell, 1885.—CretaceoTertiary, K-L. (Laramie). (5310.)
  - Meeting Creek (a tributary of Battle River), township 45, range XVII. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 4'6".—Coll., J. B. Tyrrell, 1884.—Cretaceo-Tertiary, K-L. (Laramie). (5104.)
    - From seam near the mouth of Egg Creek, North Saskatchewan River, (opposite Victoria) township 58, range XVII. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 13".—Coll., J. B. Tyrrell, 1886.—Cretaceous, K. (Pierre). (5482.)
    - Red Deer River, township 29, range XX. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 2'.—Coll., J. B. Tyrrell, 1884.—Cretaceo Tertiary, K-L. (Laramie). (5091.)
  - Devils Pine Creek, township 30, range XXII. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 4' 6".—Coll., J. B. Tyrrell, 1884.—Cretaceo-Tertiary, K-L. (Laramie).)

## Lignite-Continued.

Lignite—Red Deer River, four miles below Tail Creek, township 37, range XXII. west of the 4th initial meridian, district of Alberta, N.W.T. 10' 6" coal in an 18' section—thickest seam 3'.—Coll., J. B. Tyrrell, 1884.—Cretaceo-Tertiary, K-L. (Laramie). (5097.)

Upright
wing-case
8.—
Continued

- Red Deer River, township 38, range XXII. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 2' 6".—Coll., J. B. Tyrrell, 1884.—Cretaceo-Tertiary, K-L. (Laramie). (5099.)
- --- Red Deer River, near the 10th correction line, range XXII. or XXIII. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 1'8" to 8'.—Coll., J. B. Tyrrell, 1884.—Cretaceo-Tertiary, K-L. (Laramie). (5100.)
- Knee Hills Creek, north of Rosebud River, township 29, range XXIII. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 4'.—Coll., J. B. Tyrrell, 1884.—Cretaceo-Tertiary, K.L. (Laramie). (5090.)
  - Red Deer River, twelve miles above Tail Creek, township 38, range XXIV. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 10' with 3' of interbedded sandstone and shale.—Coll., J. B. Tyrrell, 1884.—Cretaceo-Tertiary, K-L. (Laramie). (5098.)
- South of the North Saskatchewan River, on Vermilion River, two hundred yards west of the trail between Battleford and Edmonton,township 51, range XI. west of the 4th initial meridian, district of Alberta, N.W.T.—Presented by Sir Charles Tupper, Bart., 1881.—Cretaceous, K. (3547.)
  - North Saskatchewan River, near Victoria, township 58, range XVIII. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 1'.—Coll., J. B. Tyrrell, 1886.—Cretaceous, K. (5441.)
- Big Island seam, North Saskatchewan River, twelve miles above Edmonton, township 21, range XXV. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 3' 8".—Coll., J. B. Tyrrell, 1886.—Cretaceo-Tertiary, K-L. (Laramie). (5483.)
  - North Saskatchewan River, township 50, range XXVI. west of the 4th initial meridian, district of Alberta, N.W.T.—Coll., J. B. Tyrrell, 1886.—Cretaceo-Tertiary, K-L. (Laramie). (5439.)
  - North Saskatchewan River, near the mouth of Conjuring Creek, township 51, range XXVI. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 2'8".—Coll., J. B. Tyrrell, 1886.—Cretaceo-Tertiary, K-L. (Laramie). (5436.)
- North Saskatchewan River, one mile below the ferry at Edmonton, district of Alberta, N.W.T.—Ross' seam—seam 4'.—Coll., J. B. Tyrrell, 1884.—Cretaceo-Tertiary, K-L. (Laramie). (5101.)
- Black Mud River, near Edmonton, district of Alberta, N.W.T.
  Seam said to be 3'.—Presented by Mr. Connors, per J. B.
  Tyrrell, 1884.—Cretaceo-Tertiary, K-L. (Laramie). (5103.)
- North Saskatchewan River, between Rocky Mountain House and Edmonton, district of Alberta, N.W.T.—Coll., A. R. C. Selwyn, 1873.—Cretaceo-Tertiary, K-L. (Laramie). (3465.)
  - North Saskatchewan River, township 51, range II. west of the 5th initial meridian, district of Alberta, N.W.T.—Seam, 2' 10".
    —Coll., J. B. Tyrrell, 1886.—Cretaceo-Tertiary, K.L. (Laramie). (5438.)

## Lignite-Continued.

Upright wing-case 8.—
Continued.

Lignite—North Saskatchewan River, right bank, about forty miles below its confluence with the Brazeau River, district of Alberta, N.W. T. Seam 18' to 20' thick.—Coll., R. W. Ells, 1875.—Cretaceo-Tertiary, K-L. (Laramie). (927.)

- Athabasca River, about fifty-five miles above the site of old Fort
  Assiniboine, district of Alberta, N.W.T. Lower seam—seam
  3.'—Coll., G. M. Dawson, 1879.—Cretaceo-Tertiary, K-L.
  (Laramie). (3461.)
- Smoky River, five miles below the mouth of Little Smoky River, district of Alberta, N.W.T. Seam  $2\frac{1}{2}$ ".—Coll., G. M. Dawson, 1879.—Cretaceous, K. (Dunvegan group). (3468.)
- Burnt River, Peace River, district of Athabasca, N.W.T.—Coll.,
   R. G. McConnell, 1879.—Cretaceous, K. or Cretaceo-Tertiary, K-L. (Laramie). (3462.)
- Mackenzie River, fifteen miles above the mouth of Bear River, N.
   W.T. Upper seam.—Coll., R. G. McConnell, 1888. (5724.)
- Mackenzie River, fifteen miles above the mouth of Bear River, N. W.T. Lower seam.—Coll., R. G. McConnell, 1888. (5725.)
- Mackenzie River, five miles above Bear River, N.W.T.—Coll., R. G. McConnell, 1888. (5726.)
- -- Rat River, Rocky Mountains, Lat. 67' 30", N.W.T.—Coll., R. G. McConnell, 1888. (5727.)
- Pine River, Coal Brook, about two and a half miles east of the Lower Forks, B.C. Seam 6".—Coll., G. M. Dawson, 1879.
   —Cretaceous, K. (Dunvegan group). (4899.)
- At the junction of Nicola and Coldwater Rivers, B.C.—Coll., G. M. Dawson, 1877.—Tertiary, L 2. (Miocene). (920.)
- Fort George, Fraser River, B.C.—Coll., G. M. Dawson, 1875. (Loose). (1013.)
- Blackwater Depôt, Blackwater River, B.C.—Coll., G. M. Dawson, 1875.—Tertiary, L 2. (Miocene). Drift lignite. (3477.)
- Chin-oo-kun-dl Creek, Graham Island, north of Skidegate Inlet, Queen Charlotte Islands, B.C.—Coll., G. M. Dawson, 1878.
   Tertiary, L 2. (Miocene). (3476.)
- Skon-un Point, Graham Island, Queen Charlotte Islands, B.C.—Coll., G.M. Dawson, 1878.—Tertiary, L 2. (Miocene). (3480.)
- Ya-kan Point, Graham Island, Queen Charlotte Islands, B.C.—Coll., G. M. Dawson, 1878.—Tertiary, L 2, (Miocene). (3482.)

## Lignitic Coal.

Lignitic coal.—Sheran's mine, Coal Banks, Belly River, district of Alberta, N.W.T. Main seam—seam averages 5' 4".—Coll., G. M. Dawson, 1881.—Cretaceous, K. (base of Pierre). (498.)

- -- Coal Banks, Belly River, district of Alberta, N.W.T. Above main seam—seam 8".—Coll., G. M. Dawson, 1881.—Cretaceous, K. (base of Pierre shales). (3470.)
- Belly River, five miles below the mouth of Little Bow River, district of Alberta, N.W.T. Seam 1' 6".—Coll., G. M. Dawson, 1881. Cretaceous, K. (Belly River series). (3471.)
- Belly River, about five miles below Coal Banks, district of Alberta,
   N.W.T. Main seam.—Coll., G. M. Dawson, 1881.—Cretaceous, K. (base of Pierre). (3472.)
- Belly River, seam at mouth of St. Mary River, district of Alberta, N.W.T.—Coll., G. M. Dawson, 1881.—Cretaceous, K. (base of Pierre): (3473.)

#### Lignitic Coal-Continued.

Lignitic coal—Near Indian Farm, south of Pincher Creek, Old Man River, township 5, range XXIX. west of the 4th initial meridian, district of Alberta, N.W.T. Seam 2'.—Coll., G. M. Dawson, 1881.

—Cretaceo-Tertiary, K-L. (base of Laramie). (3455.)

Upright wing-case Continued.

Pincher Creek (near the road crossing), Old Man River, district of Alberta, N.W.T.—Coll., T. C. Weston, 1873.—Cretaceo-Tertiary, K-L. (Laramie). (4912.)

Red Deer River, near the outer edge of the Foot Hills, township 31. range VII. west of the 5th initial meridian, district of Alberta, N.W.T. Seam 9'.—Coll., J. B. Tyrrell, 1885.—Cretaceo-Tertiary, K-L. (Laramie). (5311.)

North Saskatchewan River, at the mouth of the Clearwater River, township 39, range VII. west of the 5th initial meridian, district of Alberta, N.W.T. Seam 8½".—Coll., J. B. Tyrrell, 1885.—Cretaceo-Tertiary, K-L. (Laramie). (5312.)

Rocky Mountain House seam, North Saskatchewan River, two miles below the mouth of Clearwater River, section 33, township 39, range VII. west of the 5th initial meridian, district of Alberta, N.W.T. Seam 2' or more.—Coll., J. B. Tyrrell, 1886.—Cretaceo-Tertiary, K-L. (Laramie). (5486.)

Lewes River (a branch of the Yukon River), four and a half miles above Rink Rapid, N.W.T. Seam about 3'.—Coll., G. M. Dawson, 1887.—Cretaceo-Tertiary, K L. (Laramie). (5548.)

Wapita (Elk) River, Peace River district, N.W.T.—Coll., G. M. Dawson, 1879.—Cretaceo-Tertiary, K-L. (Laramie). (3469.)
Coal Gully, Nicola River, B.C. Upper seam—seam 15′ 4″.—Coll., G. M. Dawson, 1877.—Tertiary, L 2. (Miocene). (3479.)

## Coal of Cretaceous and Laramie age.

Coal.—St. Mary River, near the forty-ninth parallel, district of Alberta, N.W.T. Seam 1' 6".—Coll., G. M. Dawson, 1873. Cretaceo-Tertiary, K-L. (base of Laramie). (3509.)

St. Mary River, district of Alberta, N.W.T.—Coll., G. M. Dawson, 1873.—Cretaceo-Tertiary, K-L. (Laramie?) (3464.)

Upper Belly River, twenty-five and a half miles above the mouth of Kootanie (Waterton) River, district of Alberta, N.W.T. Seam 1'.—Coll., R. G. McConnell, 1881.—Cretaceo-Tertiary, K-L. (base of Laramie). (4898.)

Middle Fork, Old Man River, district of Alberta, N.W.T. Lower seam—seam about 3'.—Coll., G. M. Dawson, 1881.—Cretaceo-Tertiary, K.-L. (Laramie). (3456.)

Middle Fork, Old Man River, district of Alberta, N.W.T. Upper seam—seam 3'.—Coll., G. M. Dawson, 1881.—Cretaceo-Tertiary, K-L. (Laramie). (3458.)

North-west branch of the North Fork of Old Man River, Rocky Mountains, district of Alberta, N.W.T. Scam 8' or more.— Coll., G. M. Dawson, 1883.—Cretaceous, K. (4897.)

Oyster Creek, north-west branch of the North Fork of Old Man River, Rocky Mountains, district of Alberta, N.W.T.—Coll., G. M. Dawson, 1883.—Cretaceo-Tertiary, K-L. (Laramie). (5109.)

South Fork of Old Man River, four miles above south branch, Rocky Mountains, district of Alberta, N.W.T. Seam 9'9". -Coll., G. M. Dawson, 1883.—Cretaceous, K. (4902.)

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#### COAL SERIES-Continued.

### Coal of Cretaceous and Laramie age-Continued.

Upright wing-case 8 -Continued.

Coal-Coulée near Pincher Creek, one mile and a half from the trailcrossing, Old Man River, district of Alberta, N.W.T. Seam about 2'6".—Coll., J. B. Tyrrell, 1883.—Cretaceo-Tertiary, K.-I. (base of Laramie). (4896.)

Mill Creek, about four miles above the mill, township 5, range I. west of the 5th initial meridian, district of Alberta, N.W.T. Seam 8' to 9' thick.—Coll., G. M. Dawson, 1881.—Cretaceo-Tertiary, K-L. (Laramie). (3481.)

From seam near the headwaters of Mill and Pincher Creeks, section 10, township 5, range I. west of the 5th initial meridian, district of Alberta, N.W.T. Seam about 8'.—Presented by N. M. F. Scobie, 1888.—Cretaceo-Tertiary, K-L. (Laramie). (5445.)

Coal Creek, Bow River, between Morley and Calgary, district of Alberta, N.W.T. Seam 1'.—Coll., G. M. Dawson, 1881. -Cretaceo-Tertiary, K-L. (base of Laramie). (3453.)

- Bow River coal mine (Vaughan's mine), south side of Bow River, a quarter of a mile south-east from mouth of Coal Creek, section 13, township 26, range V. and section 18, township 26, range west of the 4th initial meridian, district of Alberta, N.W.T. Seam 10' 10", with three partings; total thickness of coal, 7' 7".—Coll., J. B. Tyrrell, 1886.—Cretaceo-Tertiary, K-L. (base of Laranie). (5474.)
  - Red Deer River, Rocky Mountains, district of Alberta, N.W.T .-Coll., G. M. Dawson, 1884.—Cretaceous, K. (5108.)
- North Kootanie Pass, Rocky Mountains, B.C.-Coll., G. M. Dawson, 1883.—Cretaceous, K. (4895.)
- Entrance to North Kootanie Pass, Rocky Mountains, N.W.T. Seam 1' 6".—Coll., G. M. Dawson, 1883.—Cretaceous, K. (4904.)

South Fork of Sheep Creek, section 2, township 20, range III. west of the 5th initial meridian, district of Alberta, N.W.T. (3639.)

Crow Nest Pass, four miles west of the Gap, Rocky Mountains, district of Alberta, N.W.T. Middle seam—seam 2' 10".—Coll., G. M. Dawson, 1883.—Cretaceous, K. (4905.)

Second crossing, Marten Creek, Crow Nest Pass, Rocky Mountains. B.C.—Coll., G. M. Dawson, 1883.—Cretaceous, K. (Kootanie series). (4893, 4894.)

Coal Creek, Crow Nest Pass, Rocky Mountains, B.C. Seam 7'.—Coll., A. R. C. Selwyn, 1891.—Cretaceous, K. (Kootanie series). (5448.)

Marten Creek, Crow Nest Pass, Rocky Mountains, B.C. Seam 6'. -Coll., A. R. C. Selwyn, 1891.—Cretaceous, K. (Kootanie series). (5451.)

"Jubilee" seam, second crossing, Marten Creek, Crow Nest Pass, Rocky Mountains, B.C. Seam about 30' clear coal.—Presented by the Crow Nest Mining Company, 1886.—Cretaceous, K. (Kootanie series). (5484.)

"Peter" seam, second crossing, Marten Creek, Crow Nest Pass, Rocky Mountains, B.C. Seam about 14' clean coal.—Pre-Rocky Mountains, B.C. Seam about 14' clean coal.—Presented by the Crow Nest Coal Mining Company, 1886.—Cretaceous, K. (Kootanie series)- (965.)

Elk River, Crow Nest Pass, Rocky Mountains, B.C., Seam 15'—Coll., A. R. C. Selwyn, 1891.—Cretaceous, K. (Kootanie series). (5577.)

Upright wing-case 9.

#### Coal of Cretaceous and Laramie age-Continued.

- Coal—Indian Reserve, Coal Creek, North Thompson River, B.C.—Coll., G. M. Dawson, 1877.—Tertiary, L 2. (Miocene). (1212.)
  - Union mine, Comox, Vancouver Island, B.C.—Presented by the Union Mining Company, 1875.—Cretaceous, K. (496.)
  - Baynes Sound mine, Comox, Vancouver Island, B.C. Upper seam -seam 5' 10".—Coll., G. M. Dawson, 1878.—Cretaceous, K. (918.)
  - Baynes Sound mine, Comox, Vancouver Island, B.C.—From end of adit on upper seam.—Coll., G. M. Dawson, 1878.—Cretaceous, K. (3495.)
  - Baynes Sound mine, Comox, Vancouver Island, B.C.-Lower seam—seam about 7' thick.—Coll., G. M. Dawson, 1878.— Cretaceous, K. (644.)
  - Wellington mine, two and a half miles north-west of Nanaimo, and three miles west of 'Departure Bay, Vancouver Island, B.C.

    '' Newcastle'' seam—seam 6' to 10'.—Presented by Dunsmuir, Diggle and Company, 1875.—Cretaceous, K. (3497.)

    Newcastle Island, near Nanaimo, Vancouver Island, B.C.—Lower seam—seam 4'.—Coll., J. Richardson, 1872.—Cretaceous,
  - K. (3498.)
    - From between Beaver Harbour and Alert Bay, two and a half miles south-east of Fort Rupert, Vancouver Island, B.C. Seam 6".—Coll., G. M. Dawson, 1878.—Cretaceous, K. (3492.)
  - From between Beaver Harbour and Alert Bay, four miles southeast of Fort Rupert, Vancouver Island, B.C. Seam 4".—Coll., G. M. Dawson, 1878.—Cretaceous, K. (3493.)
  - Kī-uk River, near the mouth, about three miles south of Beaver Harbour, Vancouver Island, B.C.—Seam 6".—Coll., G. M. Dawson, 1885.—Cretaceous, K. (5475.)
  - On small stream, three-quarters of a mile south of the mouth of Klik-si-wi River, north-east coast of Vancouver Island, B.C. Seam 1' 4".—Coll., G. M. Dawson, 1885.—Cretaceous, K. (5476.)
  - About two miles and a quarter up the Klik-si-wi River, north-east coast of Vancouver Island, B.C. Seam 2" to 3".—Coll., G. M. Dawson, 1885.—Cretaceous, K. (5481.)
  - Suquash, north-east coast of Vancouver Island, B.C. Upper seam —seam 1' to 2'.—Coll., G. M. Dawson, 1885.—Cretaceous, K. (966.)
  - Coal Harbour, Quatsino Sound, Vancouver Island, B.C.—Coll., G. M. Dawson, 1878.—Cretaceous, K. (Drift in inlet). (3483.)
    - Coal Harbour seam, Coal Harbour, Quatsino Sound, Vancouver Island, B.C.—Coll., G. M. Dawson, 1878.—Cretaceous, K. (3485.)
  - From shaft sunk on two to three feet seam, north of Coal Harbour, Quatsino Sound, Vancouver Island, B.C.—Coll., G. M. Dawson, 1885.—Cretaceous, K. (5479.)
  - Rupert Arm, north side of Quatsino Sound, two miles and a quarter north-east of Hankin Point, Vancouver Island, B.C.—Coll., G. M. Dawson, 1878.—Cretaceous, K. (3488.)
  - Forward Inlet, Quatsino Sound, Vancouver Island, B.C. From upper part of seam.—Coll., G. M. Dawson, 1878.—Cretaceous, K. (3490.)
  - Forward Inlet, Quatsino Sound, Vancouver Island, B.C. Best sample from heap at excavation. - Coll., G. M. Dawson, 1878.—Cretaceous, K. (3491.)

Upright wing-case 9\_ Continued.

#### Coal of Cretaceons and Laramie age-Continued.

Upright wing-case 9.—
Continued.

Coal—From a seam near Ya-koun River, which flows into Masset Inlet—about twelve miles to the north of Skidegate Inlet, Queen Charlotte Islands, B.C. Seam said to be 18'.—Presented by W. A. Robertson, 1886.—Cretaceous, K. (968.)

South side of Skidegate Inlet, Queen Charlotte Islands, B.C.—Coll., G. M. Dawson, 1878,—Cretaceous, K. (3489.)

#### Anthracitie coal.

Anthracitic coal.—Cascade River, two and three-quarter miles from its confluence with the Bow, Bow River Pass, Rocky Mountains, section 8, township 26, range XI. west of the 5th initial meridian, district of Alberta, N.W.T. Seam about 1'8".—Coll., E. Coste, 1883.—Cretaceous, K. (Kootanie series.) (5488.)

## Semi-anthracite.

- Semi-anthracite.—Cascade River, near Bow River, about a quarter of a mile from the line of the C.P.R., south-east corner of section 8, township 26, range XI. west of the 5th initial meridian, district of Alberta, N.W.T. Upperthick seam, near Hughes (now Stewart's) mine. Seam 3' 10".—Coll., G. M. Dawson, 1885.—Cretaceous, K. (Kootanie series). (5111.)
  - Cascade mine (Moberly's), Cascade River, Bow River Pass, Rocky Mountains, district of Alberta, N.W.T. Seam about 4'—Coll., A. R. C. Selwyn, 1883.—Cretaceous, K. (5045.)
  - Canmore mine, one mile from Canmore station, C.P.R., on the south side of Bow River, section 31, township 34, range X. west of the 5th initial meridian, district of Alberta, N.W.T. Coll., G. M. Dawson, 1891.—Cretaceous, K. (5677.)
  - Bow River, right bank, one mile and a half from Canmore station,
     C.P.R., section 29, township 24, range X. west of the 5th initial meridian, district of Alberta, N.W.T. Seam about 1'.—Coll., G. M. Dawson, 1885.—Cretaceous, K. (5110.)
  - Marsh's mine, about one mile and a half south of Bow River, at Gap siding, Rocky Mountains, district of Alberta, N.W.T. Upper seam—seam about 12'.—Coll., R. G. McConnell, 1886.—Cretaceous, K. (5477.)
  - From the same locality as No. 5477.—Lower seam—seam 10'.—
     Coll., R. G. McConnell, 1886.—Cretaceous, K. (5478.)

#### Anthracite.

- Anthracite.—Robinson Creek Tunnel, Cowgitz, Queen Charlotte Islands, B.C.
  —Coll., G. M. Dawson, 1878.—Cretaceous, K. (3487.)
  - Cowgitz, Skidegate Inlet, southern end of Graham Island, Queen Charlotte Islands, B.C.—Coll., J. Richardson, 1872.—Cretaceous, K. (1023.)
  - Hooper Creek or Nicholson's Tunnel, Cowgitz, Queen Charlotte Islands, B.C.—Coll., J. Richardson, 1872.—Cretaceous, K. (3496.)

#### Anthracite-Continued.

Carbonaceous shale.—From the so-called anthracite mine, Lepreau, Charlotte county, N.B.—Coll., R. Chalmers, 1884.—Carboniferous, G. 1. (In drawer under case.) (3619.)

Upright wing-case 9.—
Continued.

The following, which are shown in connection with the lignite, are also placed in this case.

Material resulting from the combustion of seam of lignite, from foot of the slope in which the seam of lignite is exposed, North Saskatchewan River, section 35, township 50, range IV. west of the 5th initial meridian, district of Alberta, N.W.T. Carries traces of gold.—Coll., J. B. Tyrrell, 1886.—Cretaceo-Tertiary, K-L. (Laramie). (5420.)

Material resulting from combustion of seam of lignite, from seam. Haney's first claim, North Saskatchewan River, section 35, township 50, range IV. west of the 5th initial meridian, district of Alberta, N.W.T. Carries traces of gold.—Coll., J. B. Tyrrell, 1886.—Cretaceo-Tertiary, K.L. (Laramie). (5421.)

Arenaceous clay-shale overlying seam of lignite. Haney's second claim, North
Saskatchewan River, section 35, township 50, range IV.
west of the 5th initial meridian, district of Alberta, N.W.T.
Carries traces of gold.—Coll., J. B. Tyrrell, 1886.—CretaceoTertiary, K.L. (Laramie). (5422.)

Ashes resulting from the combustion of seam of lignite, from seam. Haney's second claim, North Saskatchewan River, section 35, township 50, range IV. west of the 5th initial meridian, district of Alberta, N.W.T. Carries traces of gold.—Coll., J. B. Tyrrell, 1886.—Cretaceo-Tertiary, K.L. (Laramie.) (5423.)

Shaly parting in seam (eight feet from top) of lignite, near Haney's first claim,
North Saskatchewan River, section 35, township 50, range
IV. west of the 5th initial meridian, district of Alberta,
N.W.T. Carries traces of gold.—Coll., J. B. Tyrrell, 1886.
—Cretaceo-Tertiary, K.L. (Laramie). (5424.)

Portion of erect trunk of fossil tree found standing over seam of lignitic coal (No. 5486) at Rocky Mountain House, North Saskatchewan River. district of Alberta, N.W.T., The exterior two inches of the trunk is converted into lignitic coal—whilst the interior woody tissue has been almost entirely replaced by siliceous and argillaceous material.—Coll., J. B. Tyrrell, 1886.—Cretaceo-Tertiary. K.L. (Laramie.) (5437.)

### Coal of the Carboniferous System.

Coal.—Albion Mines, west side of East River, Pictou county, N.S. Main seam 3' 6" from top. (527.)

Upright wing-case 10.

_	Albion Mines,	Main se	eam, o ir	om top.	(530.)
	do	do	7'	do	(525.)
	do	do	8'	do	(529.)
_	do	do	15'	do	(526.)
******	do	bottom e	of Main s	eam.	(528.)
and the same of	do	Deep sea	im, 3' fro	m top.	(532.)
	do	do	first b	ench.	(533.)
	do	bottom o	of Deep se	eam. (	(524.)

 Acadia Mines, west side of East River, Pictou county, N.S.— McGregor seam. (505.)

# Coal of the Carboniferous System-Continued.

Upright wing-case 10.—
Continued.

Co

	Coar of the carso			Clan. (F10)		
al—Ac	adia Colliery, Acadia se					
	do do		h, west slope.			
	do do	third do		(519.)		
_	do do	fourth do		(522.)		
	do do	fifth do		(520.)		
_		Acadia seam.	/	4		
_	Drummond Colliery, w Acadia seam, F	all-coal bench.	(540.)			
-	Drummond Colliery, A (535.)					
	Drummond Colliery, A (537.)	Acadia seam, se	cond bench,	8' from pavement.		
	Drummond Colliery, third beach, 6'			tween second and		
	Drummond Colliery, A (538.)	Acadia seam, t	hird bench, 2	2' from pavement.		
-	Drummond Colliery, seam. (542.)	Acadia seam,	Coarse-coal	bench, bottom of		
		Vale Colliery, east side of East River, Pictou county, N.S.—McBean S' seam, first bench. (507.)				
_	Vale Colliery, McBean	n 8' seam, secon	nd bench. (5	06.)		
	do do	botto	om do (5	12.)		
	Marsh Colliery, east si Mackay seam.		r, Pietou com	nty, N.S.—George		
-	Montreal and New Gl Potter's Broo Lawson's slope,	k, Pictou, co	unty, N.S	e, on left bank of -Lawson's seam,		
	Montreal and New Gl Lawson's slope,					
		Montreal and New Glasgow Coal Company's minê, Lawson's seam, Lawson's slope, Coarse-coal bench. (510.)				
	Joggins mine, Cumberland county, N.S. (488.)					
	Springhill Mines, Cun	nberland count	y, N.S.—Blac	ck seam. (493.)		
	do And	erson's slope, v	vest level. (	504.)		
	Lorway mine, Cape B	reton county,	N.S.—Lorway	y seam. (487.)		
-	Sydney Mines	do	Main s	eam. (489.)		
_	Block House mine	do	Block	House seam. (490.)		
	Schooner Pond mine	do	Ross s	eam. (491.)		
-	Lingan mine	do	Main s	eam. (492.)		
	Little Glace Bay Mine	es do	Harbo	ur seam. (497.)		
-	Victoria mine	do	Lyle se			
	Caledonia mine	do	Phelar	seam. (503.)		
-	Gardiner mine	do	Lorwa	y seam. (544.)		
-	Emery mine (1021.)	do	Ross	or Emery seam.		
	Kelly Cove, Cape Bre	ton county, N.	S.—4' seam.	(1022.)		

## BITUMEN SERIES

Upright wall-case

Albertite.—Albert Mines, Albert county, N.B.—Coll., L. W. Bailey, 1875.—Carboniferous, G 1 (1016.)

#### BITUMEN SERIES-Continued.

Bituminous sand-rock.—Athabasca River (at its confluence with the Clearwater River—and beyond), N.W.T.—Coll., R. Bell, 1882. (909.)

Upright wall-case 11.—
Continued.

(1) The quartz sand of "Bituminous sand-rock" as left on removal of the bituminous matter. (909a,)

Bituminous shale.—Dorchester, Westmoreland county, N.B.—Coll., L. W. Bailey, 1875.—Carboniferous, G 1. (5258.)

Mineral tar (maltha).—White Mud River, two hundred and fifty miles above Fort Vermilion, Peace River, N.W.T. (4964.)

- Tar Island, Peace River, twenty-seven miles below Smoky River, N.W.T.—Presented by W. Ogilvie, 1885. (4965.)
- North shore of Great Slave Lake, about thirty miles east of outlet,
   N.W.T.—Coll., R. G. McConnell, 1887. (4705.)
- Athabasca River (about twelve miles below its confluence with the Little Red River—and beyond), N.W.T.—Coll., A. S. Cochrane, 1881. (1017.)
- Trap, with cavities containing more or less altered petroleum, Tar Point, township of Douglas, Gaspé county, Q. (889.)
- Oil-coal.—Andrew Patrick's mine, McLellan's Brook, Pictou county, N.S.—Coll., E. Hartley, 1868.—Carboniferous, G. (511.)
  - From a pit on the old brick-kiln road, Montreal and Pictou area, Pictou county, N.S.—Coll., E. Hartley, 1868.—Carboniferous, G. (840.)
  - (Stellarite).—Acadia Mines, Pictou county, N.S.—Coll., W. E. Logan, 1868.—Carboniferous G. (851.)
- Oil shale.—Haliburton pit, Marsh Brook, Pictou county, N.S.——Coll., W. E. Logan, 1868.—Carboniferous G. (845.)
- Petroleum-bearing fossiliferous limestone.—Lot 13, range II. of Bertie, Welland county, O.—Devonian, F 1. (711.)
- Crude petroleum.—Lake Ainslie, Inverness county, Cape Breton, N.S.—Presented by W. Harrington. (723.)
  - St. Joseph, Dorchester, Westmoreland county, N.B.—Coll., H. P. Brumell, 1891.—Carboniferous, G 1. (910.)
  - Beliveau mine, Beliveau, Westmoreland county, N.B.—Coll., W. McOuat, 1873.—Carboniferous, G 1. (2443.)
  - Vicinity of Gaspé Basin, Gaspé county, Q.—Coll., T. C. Weston, 1865.—Devonian, F 1 (717.)
  - From a branch of Silver Brook, about eighteen miles from Gaspé Basin, Gaspé county, Q.—Coll., A. R. C. Selwyn, 1889. (987.)
  - Walker's well "No. 2," Marshfield, south-west corner of lot 11, range VI. of Colchester, Essex county, O.—Coll., H. P. Brumell, 1891.—Silurian, E. (655.)
  - Tilsonburg, Dereham, Oxford county, O.-Devonian, F 1. (712.)
  - Miles' and Watkins' rock well, Tilsonburg, Dereham, Oxford county, O.—Devonian, F 1. (715.)
  - Kelly's well, Enniskillen, Lambton county, O. (714.)
  - Miller's surface well do do (716.)
  - Piker's well do do (718.)Williams' well do do (722.)
  - Williams' well do do (722.)
     33° Baumé.—Petrolia, Enniskillen, Lambton county, O.—Devonian, F 1. (5000.)
    - Products (Nos. 5000a to 5000cc) obtained therefrom, presented by Isaac Waterman, London, O.
      - (1) Benzine (petroleum spirit). (5000a.)

## BITUMEN SERIES-Continued.

Upright
wall-case
11.—
Continued.

Crude petroleum-Products, etc.-Continued.

- (2) Illuminating oil 150° fire test. (5000b.)
- 200° do . (5000c.)
- (mineral sperm oil) 300° fire test. (5000d.) (4)
- Oil for painters use. (5000e.)
- (6) "Bloomless" oil, for mixing with animal oils. (5000f.)
- (7) Illuminating oil (hand-lamp oil). (5000g.)
- (8) Tar. 20° Baumé. (5000h.)
- (9) Coke (soft). (5000i.)
- (10) Unpressed paraffin oil, 29° Baumé. (5000i.)
- 25° ob (5000k.) (11) Pressed
- 26° (50001.)(12)
- (13)do 27° (5000m.)
- $28^{\circ}$ (14)do do (5000n.)
- (15) Lubricating oil (engine oil). (5000o.)
- (heavy engine oil). (5000p.)
- (wooden-machinery oil) Baumé. (5000a.)
- (18) Lubricating oil (spindle oil) 26° Baume. (5000r.)
- (19) Heavy paraffin oils, mixed for machinery oil. (5000s.)
- (20) Steam-filtered petroleum, for lubricating purposes. (5000t.)
- (21) Lubricating oil (coach oil) 28° Baumé. (5000u.)
- (22) Oil for tanner's use. (5000v.)
- (23) Flour paraffin. (5000w.)
- (24) Crude paraffin wax. (5000x.)
- (25) Axle grease (yellow). (5000y.)
- (26)ob (black). (5000z.)
- (27) Candles. (5000aa.)
- (28) Paraffin wax. (5000bb.)
- (29) Coke (hard) final residuum of distillation. (5000cc.)
- Cape Smith, Grand Manitoulin Island, Lake Huron, O.—Cambro-Silurian, D 2. (713.)
- South Kootanie Pass, Rocky Mountains, district of Alberta, N.W.T.
- —Coll., A. R. C. Selwyn, 1891. (5057.) South Kootanie Pass, Rocky Mountains, B.C.—Coll., A. R. C. Selwyn, 1891. (5058.)
- Sage Creek, Flathead River, East Kootanie district, B.C.—Presented by Lieut.-Colonel Baker, M.P.P., 1890. (4686.)

Oil distilled from the shale of Kettle Point, Bosanquet, Lambton county, O. (719.)

## IV. MINERALS (AND MATERIAL MANUFACTURED FROM CERTAIN OF THE SAME) APPLICABLE TO COMMON AND DECORATIVE CONSTRUCTION.

#### ROOFING SLATES.

Upright wing-case 12.

Roofing slate.—Lot 4, range I. of Kingsey, Drummond county, Q.--Coll., J. Richardson, 1859.—Cambrian, C. (545.)

Rankin Hill slate quarry, lot 25, range V. of Acton, Bagot county, Q.—Coll., T. C. Weston, 1875.—Cambrian, C 3. (552.)

#### ROOFING SLATES-Continued.

Roofing slate-Lot 2, range V. of Orford, Sherbrooke county, O.-Coll., J. Richardson.—Cambro-Silurian, D. (554.)

St. Sylvestre, St. Giles de Beaurivage, Lotbinière county, Q.—Coll., A. R. C. Selwyn.—Cambrian, C. (2504.)

New Rockland slate quarry, lot 23, range IV. of Melbourne, Richmond county, Q.—Presented by Charles Drummond, Montreal, 1875.—Cambrian, C. (2505.)

(1.) Slab of planed slate. (2505a.)

- Melbourne slate quarry, lot 22, range VI. of Melbourne, Richmond county, Q.—Presented by B. Walton, 1875.—Cambrian, C.
- Steele's quarry, lot 6, range XV. of Cleveland, Richmond county, Q.—Coll., T. C. Weston.—Cambrian C. (546.)
- Bedard's quarry, lot 5, range XV. of Cleveland, Richmond county, Q.—Coll., R. W. Ells, 1889.—Cambrian, C. (550.)

School slates, and ornamental slate panel manufactured by the Danville School Slate Company at Gansonville, from slate found on lot 7, range IV. of Shipton, Richmond county, Q.—Coll., T. C. Weston, 1875.— Cambrian C. (548 and 549.)

Roofing slate.—Lot 5, range VI. of Madoc, Hastings county, O.—Coll., C. W. Willimott, 1885.—Archean, A.B. (2578.)

Slate flooring-tiles.—Lot 15, range IX. of Garthby, Wolfe county, Q.—Coll.,

J. Richardson.—Cambrian, C. (2580.)

Tile-stones.—Anse à la Vieille, Port Daniel, Bonaventure county, Q.--Coll., W. E. Logan, 1843.—Cambrian, C 3. (825.)

#### BUILDING STONES.

#### Limestones.

Limestone.—Parrsborough, Cumberland county, N.S.—Coll., S. Barlow, 1875. —Carboniferous, G. 1. Six-inch cube, dressed. (1172.)

River Mistassini (about thirty miles from Lake St. John and ten miles above steam navigation), Chicoutimi county, Q.—Presented by J. G. Scott, 1890.—Laurentian, A. Dressed block,  $6\frac{1}{2}$  by 4 by  $2\frac{1}{2}$  inches. (571.)

Pointe aux Trembles, Portneuf county, Q.—Coll., J Richardson, 1875.—Cambro-Silurian, D 2. Six-inch cube, dressed. (1166.)

Deschambault, Portneuf county, Q.—Cambro-Silurian, D 2. Five and a half inch cube, dressed. (1167.)

- St. Alban quarry, La Chevrotière, Portneuf county, Q.—Presented by C. Dussault, 1885.—Cambro-Silurian, D 2. Six-inch cube, dressed. (5127.)
- Lot 12, range VI. of Dudswell, Wolfe county, Q.—Silurian, E 3. Six-inch cube, dressed. (534.)
- Dudswell, Wolfe county, Q.—Silurian, E 3. Six-inch cube dressed. (559.)
- Lot 15, range V. of Dudswell, Wolfe county, Q.—Coll., C. W. Willimott, 1885.—Silurian, E 3. Six-inch cube, dressed. (5119.)
- Joliette (Industry village), Joliette county, Q.—Coll., W. E. Logan, 1852.—Cambro-Silurian, D 1. Six-inch cube, dressed. (560.)
- St. Lin, L'Assomption county, Q.—Coll., J. Richardson, 1852.—Cambro-Silurian, D 1. Six-inch cube, dressed. (564.)
- Pointe Clair, Jacques Cartier county, Q.—Presented by R. Forsyth, 1875.—Cambro-Silurian, D 1. Six-inch cube, dressed. (1164.)
- From the same locality as the preceding (No. 1164) but differing in colour. (1165.)

Upright wing-case 12 \_ Continued.

Upright wing-case 13.

## BUILDING STONES-Continued.

#### Limestones—Continued.

Upright wing-case 13.—
Continued.

- Limestone.—Montreal, Hochelaga county, Q.—Cambro-Silurian, D 1. Sixinch cube, dressed. (557.)
  - Montreal, Hochelaga county, Q.—Cambro-Silurian, D 2. Six-inch cube, dressed. (563.)
  - Caughnawaga, Laprairie county, Q.—Cambro-Silurian, D 1. Five and a half-inch cube, dressed. (568.)
  - "Bernier" quarry, about five miles from St. John's, St. John's county, Q. Six-inch cube, dressed. (502.)
  - Brunet's quarry, St. Armand, Missisquoi county, Q.—Cambrian, C 3. Six-inch cube, dressed. (1161.)
  - St. Dominique, Soulanges county, Q.—Cambro-Silurian, D 1. Five and a half-inch cube, dressed. (567.)
    - McGregor's quarry, Lachute, Argenteuil county, Q.—Coll., B. J.
      Harrington, 1875.—Laurentian, A. Six-inch cube, dressed.
      (1154.)
  - Grenville, about half a mile from the Calumet mills, Argenteuil county, Q.—Coll., T.C. Weston, 1875.—Laurentian, A. Sixinch cube, dressed. (1158.)
  - Mahoney's quarry, Hull, Ottawa county, Q.—Coll., C. W. Willimott, 1885.—Cambro-Silurian, D 2. Six-inch cube, dressed. (5065.)
  - Wright's quarry, Hull, Ottawa county, Q.—Coll., C.W. Willimott, 1885.—Cambro-Silurian, D 2. Six-inch cube, dressed. (5066.)
  - Lot 14, range VIII. of Hull, Ottawa county, Q.—Coll., C. W. Willinott, 1884.—Laurentian, A. Six-inch cube, dressed. (4920.)
  - Portage du Fort, Litchfield, Pontiac county, Q.—Coll., C. W. Willimott, 1885.—Laurentiau, A. Six-inch cube, dressed. (5078.)
  - From the same locality as the preceding (No. 5078) but differing in colour, (5105.)
  - East Hawkesbury, Prescott county, O.—Cambro-Silurian, D 1.
     Six-inch cube, dressed. (566.)
  - "Rockville" quarries, Gloucester, Carleton county, O.—Coll., T. C. Weston, 1875.—Cambro-Silurian, D 1. Six-inch cube, dressed. (561.)
    - Lot 7, range IV. of Ramsay, Lanark county, O.—N. Lavallée, Carleton Place.—Laurentian, A. Six-inch cube, dressed. (500.)
  - -- Lots 9 and 10, range VI. of Ramsay, Lanark county, O.—Coll., C. W. Willimott, 1883.—Laurentian, A. Six-inch cube, dressed. (5716.)
  - Lot 24, range VIII. of Lanark, Lanark county, O.—Coll., H. G. Vennor, 1875.—Laurentian, A. Six-inch cube, dressed. (1155.)
  - Laurentian, A. Six-inch cube, dressed. (1156.)
    - Hogg's quarry, east half of lot 21, range X. of Lanark, Lanark county, O.—Coll., C. W. Willimott, 1885.—Laurentian, A. Six-inch cube, dressed. (5076.)
    - Lot 11, range III. of McNab, Renfrew county, O.—E. Harrington, 1875.—Cambrian, C 2. Six-inch cube, dressed. (1157.)
      - Lot 4, range XIV. of McNab, Renfrew county, O.—Laurentian, A. Dressed block, 8 by 8 by 6 inches. (5081.)
  - East half of lot 24, range IV. of Ross, Renfrew county, O.—Coll.,
     C. W. Willimott, 1885.—Laurentian, A. Six-inch cube,
     dressed. (5077.)

## BUILDING STONES—Continued.

#### Limestones—Continued.

Limestone—From the so-called "Renfrew Granite Quarry," lot 11, range II. of Horton, Renfrew county, O.—Coll., C. W. Willimott, 1885.
—Laurentian, A. Six-inch cube, dressed. (5079.)

Upright wing-case 13.—
Continued.

- High Falls, Madawaska River, lot 13, range III. of Blythfield, Renfrew county, O.—Laurentian, A. Dressed block, 11½ by 12 by 4 inches. (5080.)
- Kilpatrick's quarry, Kingston, Frontenac county, O.—Coll., C. W.
   Willimott, 1885.—Cambro-Silurian, D l. Six-inch cube, dressed. (4935.)
- "Wolfe Island" quarry, Long or Wolfe Island, Kingston, Front-enac county, O.—Presented by S. J. Kilpatrick, 1888.—Cambro-Silurian, D 1. Six-inch cube, dressed. (5573.)
- Lot 28, range IX. of Barrie, Frontenac county, O.—Coll., C. W.
   Willimott, 1885.—Laurentian, A. Six-inch cube, dressed.
   (5223.)
- Lot 27, range IX. of Barrie, Frontenac county, O.—Coll., C. W. Willimott, 1885.—Laurentian, A. Six-inch cube, dressed. (5224.)
- From the same locality as the preceding (No. 5224) but differing in colour. (5226.)
- Lot 16, range XI. of Marmora, Hastings county, O.—Coll., H. G-Vennor, 1866.—Laurentian, A. Six-inch cube, dressed-(570.)
  - Madoc, Hastings county, O.—Coll., H. G. Vennor.—Laurentian, A.
     Five and a half-inch cube, dressed. (572.)
- Bridgewater, Elzevir, Hastings county, O.—Coll., H. G. Vennor, 1866.—Laurentian, A. Six-inch cube, dressed. (573.)
- Feeney's quarry, Madoc, Hastings county, O.—Coll., C. W. Willimott, 1885.—Laurentian, A. Six-inch cube, dressed. (5181.)
  - Downey's Rapids, Hog Lake, Huntingdon, Hastings county, O.—
     Coll., C. W. Willimott, 1884.—Cambro-Silurian, D 1. Sixinch cube, dressed. (630.)
- Point Anne quarry, near Belleville, Thurlow, Hastings county, O.
   —Coll., C. W. Willimott, 1884.—Cambro-Silurian, D 2.
   Six-inch cube, dressed. (4934.)
- St. Mary's, Perth county, O.—Coll., T. C. Weston, 1875.—Devonian, F 1. Six-inch cube, dressed. (1162.)
- Narrows of Lake Manitoba, Manitoba.—Presented by James Young, 1886.—Cambro-Silurian, D. Dressed block, 10 by 7 by 3½ inches. (5252.)
- Mount Mark, near Horne Lake, Vancouver Island, B.C.—Coll., J. Richardson, 1875.—Carboniferous, G? Dressed block, 10½ by 4½ by 4 inches. (2570.)
- From the same locality as the preceding (No. 2570) but differing in colour. Dressed block, 11 by 8½ by 4 inches. (2571.)
- Texada Island, Strait of Georgia, B.C.—Coll., J. Richardson, 1875.
   —Carboniferous, G? Dressed block, 5 by 5 by 4½ inches.
   (541.)
- From the same locality as the preceding (No. 541) but differing in colour. Six-inch cube, dressed. (1173.)
- From the same locality as the two preceding (Nos. 541 and 1173).
   but differing in colour.—Coll., G. M. Dawson, 1887. Six inch cube, dressed. (5187.)
- Metlah-Catlah Bay, B.C. Dressed, block, 7½ by 5½ by 2 inches. (5082.)
- conglomerate.—Point Levis, Levis county, Q.—Cambro-Silurian,
   D 1. Six-inch cube, dressed. (5365.)

Upright

wall-case

14.

#### BUILDING STONES-Continued.

#### Limestones-Continued.

Upright wall-case 14.—
Continued.

- Limestone—Dolomitic.—Selkirk, Manitoba.—Cambro-Silurian, D. Dressed block, 6 by 6 by 5\frac{1}{4} inches. (5044.)
  - Serpentine.—Lot 1, range I. of the augmentation of Grenville,
    Argenteuil county, Q.—Coll., C. W. Willimott, 1884.—
    Laurentian, A. Six-inch cube, dressed. (5246.)
  - Serpentine.—Grenville, Argenteuil county, Q.—Coll., T. C. Weston, 1875.—Laurentian, A. Six-inch cube, dressed. (1151.)
  - -- Serpentine.—Lot 3, range VI. of Pakenham, Lanark county, O.—
    Coll., H. G. Vennor, 1875.—Laurentian, A. Six-inch cube,
    dressed. (1152.)
  - Serpentine.—Lot 25, range VI. of Ramsay, Lanark county, 0.—
     Coll., H. G. Vennor.—Laurentian, A. Six-inch cube, dressed. (1159.)

#### Dolomites.

- Dolomite.—Calumet Island, Pontiac county, Q.—Coll., C. W. Willimott, 1884.

  —Laurentian, A. Dressed block, 5 by 4½ by 4½ inches.

  (4922.)
  - Lot 10, range IV. of Aldfield, Pontiac county, Q.—Presented by R.
     H. G. Chapman, 1885.—Laurentian, A. Six-inch cube, dressed. (5130.)
  - Bell's Corners, Nepean, Carleton county, O.—Coll., T. C. Weston, 1875.—Cambrian, C 2. Six-inch cube, dressed. (1170.)
  - -- "Railway" quarry, lot 12, range XII. of Beckwith, Lanark county, O.
    --Coll., C. W. Willimott, 1885.—Cambrian, C 2. Six-inch cube, dressed. (5067.)
  - Lot 9, range XIV. of McNab, Renfrew county, O.—E. Harrington, 1875.—Cambrian, C 2. Five-inch cube, dressed. (1169.)
  - Coboconk, Bexley, Victoria county, O.—Cambro-Silurian, D.
     Dressed block, 7½ by 4 by 3½ inches. (3745.)
  - Gibson's quarry, Grimsby, Lincoln county, O.—Coll., T. C. Weston, 1875.—Silurian, E 3. Six-inch cube, dressed. (1163.)
  - Ancaster, Wentworth county, O.—Silurian, E 3. Six-inch cube, dressed. (575.)
  - Hancock quarry, Jolly Cut, Hamilton Mountain, Barton, Wentworth county, O.—Coll., C. W. Willimott, 1884.—Silurian, E 3. Dressed block, 6 by 5½ by 5½ inches. (4933.)
  - Baxter's quarry, lots 10 and 11, Jones' tract, Cayuga, Haldimand county, O.—Coll., T. C. Weston, 1875.—Silurian E 6. Sixinch cube, dressed. (587.)
  - Strange's quarry, Rockwood, Eramosa, Wellington county, O.—
     Coll., T. C. Weston, 1875.—Silurian, E.3. Six-inch cube, dressed. (590.)
  - Owen Sound, Grey county, O.—Coll., R. Bell, 1861.—Silurian, E
     3. Six-inch cube, dressed. (1176.)
  - Pelee Island, Lake Erie, Essex county, O.—Presented by the Toronto Stone Company, 1887.—Devonian, F 1. Six-inch cube, dressed. (5388.)
  - Rapids of the Red River, above Stone Fort, Manitoba.—Coll., R.
     W. Ells, 1875.—Cambro-Silurian, D. Six-inch cube, dressed. (1168.)
  - Stony Mountain, Manitoba.—Coll., R. W. Ells, 1875.—Cambro-Silurian, D. Six-inch cube, dressed. (1175.)

#### BUILDING STONES-Continued.

#### Sandstones.

Sandstone. -McPherson's quarry, Eight-mile Brook, West River, Pictou county, N.S.—Presented by John McPherson, 1885. -Carboniferous, G 1. Dressed block, 6 by 5 by 5 inches. (5221.)

Upright wall-case 14.—
Continued.

From the same locality as the preceding (No. 5221) but differing in colour. (5222.)

Johnson's Brook, Glenville, Cumberland county, N.S.—Coll., W. McOuat, 1875.—Carboniferous, G 2. Six-inch cube, dressed.

Amherst, Cumberland county, N.S.—Presented by Rhodes, Curry & Co., 1886.—Carboniferous, G 4. (5235.)

Rockland, Dorchester, Westmoreland county, N.B.—Coll., L. W.
Bailey, 1875.—Carboniferous, G 2. Six-inch cube, dressed.
(631.)

Budreau village, Dorchester, Westmoreland county, N.B.—Coll., L. W. Bailey, 1875.—Carboniferous, G.2. Six-inch cube, dressed. (1178.)

"Bay View" quarry, Mary's Point, Shepody Bay, Albert county, N.B.—Coll., L. W. Bailey, 1875.—Carboniferous, G 2. Sixinch cube, dressed. (1179.)

"French Fort" quarry, Miramichi River, Newcastle, Northumberland county, N.B.—Coll., L. W. Bailey, 1875.—Carboniferous, G 2. Six-inch cube, dressed. (5574.)

- Cap Rouge, Portneuf county, Q.—Coll., T. C. Weston, 1875.—Cambrian, C 3. Six-inch cube, dressed. (597.)

Beauharnois, Beauharnois county, Q.—Coll., J. Richardson.—Cambrian, C 1. Five and a-half inch cube, dressed. (574.)

 From the same locality as the preceding (No. 574) but differing in colour. (582.)

Vicinity of Hawkesbury, Prescott county, O.—Cambro-Silurian,
 D 1. Six inch. (577.)

 Bell's Corners, Nepean, Carleton county, O.—Coll., T. C. Weston, 1875.—Cambro-Silurian, D 1. Six-inch cube, dressed, (595.)

— Bishop's quarry, lot 6, range II. of Nepean, Carleton county, O.—Coll., T. C. Weston, 1875.—Cambrian, C 1. (596.)

Portland, Bastard, Leeds county, O.—Presented by W. J. Morris, 1882.—Cambrian, C 1. Six-inch cube, dressed. (4923.)

McMullin's quarry, south side of Otty Lake, range VII. of North Elmsley, Lanark county, O.—Presented by W. J. Morris, 1882.—Cambrian, C 1. Six-inch cube, dressed. (4924.)

 Ramsay, Lanark county, O.—Cambrian, C1. Six-inch cube, dressed. (579.)

Pembroke, Renfrew county, O.—Cambro-Silurian, D 1. Dressed block, 7 by 4 by 3½ inches. (3746.)

Rankin's quarry, Pembroke, Renfrew county, O.—Cambro-Silurian, D 1. Dressed block, 6 by 6 by 54 inches. (576.)

Georgetown, lot 22, range VII. of Esquesing, Halton county, O.— Coll., T. C. Weston, 1875.—Silurian, E 1. Six-inch cube, dressed. (581.)

— Farquhar & Booth's quarry, lot 21, range V. of Esquesing, Halton county, O.—Coll., T. C. Weston, 1875.—Silurian, E 1. Dressed block, 6 by 6 by  $5\frac{1}{2}$  inches. (598.)

De Cew's quarry, lot 48, range I. of Oneida, Haldimand county, O.
 —W. De Cew, 1861.—Devonian, F 1. Five and a half-inch cube, dressed. (578.)

Upright wall-case

### BIIILDING STONES-Continued.

#### Sandstones-Continued.

Upright wall-case 15.--Continued. Sandstone-Mono, Dufferin county, O. -Silurian, E 1. Five and a half-inch cube, dressed. (580.)

- Dundas, Wentworth county, O .- Silurian, E 1. Five and a half
  - inch cube, dressed. (583.)

    "Canada Brown Stone" quarry, Forks of the Credit, Caledon,
    Peel county, O.—Coll., C. W. Willimott, 1884.—Silurian, E 1. Six-inch cube, dressed. (4930.)
- From the same locality as the preceding (No. 4930) but differing in colour. (4931.)
- "Credit Forks" stone quarry, Forks of the Credit, Caledon, Peel county, O.—Coll., C. W. Willimott, 1884.—Silurian, E l. Six-inch cube, dressed. (4932.)
- From the same locality as the preceding (No. 4932) but differing in colour. Dressed block, 21 by 5 by 4 inches. (5061.)
- Forks of the Credit, Caledon, Peel county, O.—Presented by the Department of Public Works, Ottawa, 1885.—Silurian, E1. Six-inch cube, dressed. (5231.)
- Verte, Nipigon Bay, Lake Superior, O.—Coll., A. R. C. Selwyn, 1883.—Cambrian C 1. Six-inch cube, dressed. (635.)
- Newcastle Island, B.C.—Coll., J. Richardson, 1872.—Cretaceous, K. Five-inch cube, dressed. (599.)
- Nansimo, Vancouver Island, B.C.—Coll., J. Richardson, 1872.— Cretaceous, K. (600.)
- Admiralty or Salt Spring Island, B.C.—Coll., G. M. Dawson, 1885. -Cretaceous, K. (5366.)
- Haddington Island, Broughton Strait, B.C.—Coll., G. M. Dawson, 1885.—Cretaceous, K. Dressed block, 6 by 6 by 51 inches. (5367.)
- Ledge Point, Port McNeil, Vancouver Island, B.C.-Coll., G. M. Dawson, 1885.—Cretaceous, K. Six-inch cube, dressed.
- Cap à l'Aigle, Murray Bay, Charlevoix county, Q.—Pitton & Co., Quebec, 1875.—Cambrian, C 1. Dressed block, 12 by 8 by 42 inches—for paving stone. (636.)
- From the same locality as the preceding (No. 636). Dressed block 9 by  $7\frac{1}{2}$  by 3 inches—for curbstone. (637.)
- "Point Levis" quarry, Point Levis, Levis county, Q.—Pitton & Co., Quebec, 1875.—Cambrian, C 3. Dressed block, 9 by 7½ by 4 in thes—for curbstone. (703.)
- From the same locality as the preceding (No. 703). Dressed block, 12 by  $7\frac{1}{2}$  by 4 inches—for paving stone. (704.)
- From the same locality as the two preceding (Nos. 703 and 704). Dressed block,  $8\frac{1}{2}$  by  $8\frac{1}{2}$  by 4 inches—for paving stone. (705.)

## Granites.

Granite.—Barnston, Stanstead county, Q. Six-inch cube, dressed.

- St. Joseph, Beauce county, Q. Six-inch cube, dressed. (1182.)
- "Nelson Island" quarry, Jervis Inlet, B.C.-Coll., G. M. Dawson, 1885. Six-inch cube, dressed. (5236.)
- Port Harvey, Cracroft Island, Johnstone Strait, B.C.-Coll., G. M. Dawson, 1885. Dressed block,  $6\frac{1}{4}$  by  $5\frac{1}{2}$  by  $5\frac{1}{4}$  inches. (5237.)

#### BILLDING STONES-Continued.

#### Granites -- Continued.

Granite—Island in Otter Cove, Chatham Point, Discovery Passage, Vancouver Island, B.C.—Coll., G. M. Dawson, 1885. Dressed block, 6 by 6 by 5½ inches. (5238.)

Upright wall-case 15.—

— "North Bend" quarry, Fraser River, B.C.—Coll., G. M. Dawson, 1885. Six-inch cube, dressed. (5380.)

Quarry near Cantilever Bridge, Fraser River, B.C.—Coll., G. M.
 Dawson, 1885. Six-inch cube, dressed. (5381.)

#### Syenites.

- Syenite.—Grenville, Argenteuil county, Q.—Laurentian, A. Six-inch cube, dressed. (585.)
  - From the same locality as the preceding but differing in colour. (586.)
  - Lot 2, range V. of Grenville, Argenteuil county, Q.—Laurentian, A.
     Six-inch cube, dressed. (592.)
  - Grenville, Argenteuil county, Q.—Laurentian, A. Six-inch cube, dressed. (1184.)
  - Barrow (Forsyth's) Island, River St. Lawrence, opposite Gananoque, Leeds county, O.—Laurentian, A. Six-inch cube, dressed. (594.)
  - Victoria, Vancouver Island, B.C.—Coll., J. Richardson, 1875.
     Six-inch cube, dressed. (1181.)

#### Gneisses.

- Gneiss.—St. Charles' reservoir, Jeune Lorette, St. Gabriel, Quebec county, Q.
  —Six-inch cube, dressed. (584.)
  - Lot 1, range III. of Grenville, Argenteuil county, Q.—Laurentian, A.
     Six-inch cube, dressed. (591.)
  - Lot 2, range V. of Grenville, Argenteuil county, Q.—Laurentian, A.
     Six-inch cube, dressed. (1180.)

#### Labradorite rock, trap rock and serpentine.

- Labradorite rock.—Chicoutimi village, Chicoutimi county, Q.—Laurentian, A. Six-inch tube, dressed. (941.)
- Trap.—Achigan River, St. Esprit, L'Assomption county, Q. Six-inch cube, dressed. (589.)
- Serpentine.—From the extreme north end of Reindeer Lake, N.W.T.—Presented by Horace Belanger, J.P., Norway House, 1889.—Archean, A. B. Six-inch cube, dressed. (1130.)

#### MARBLES.

These, which are shown in the form of polished slabs, are affixed to the ends of the upright wing-cases and in the recesses of the windows.

#### Limestone Marbles.

- Limestone.—Purplish-grey with bluish-grey, whitish and greyish-black inclusions, and dull yellowish network and veinings.—Lot 22, range VII. of Dudswell, Wolfe county, Q.—Cambrian, C 1. Polished slab, 29 by 15 inches. (675.)
  - Light brownish ash-grey, with dark grey and white spots; fossiliferous.—L'Orignal, Prescott county, O.—Cambro-Silurian, D 1. Polished slab, 29 by 14½ inches. (677.)
  - Dark brownish-black, mottled.—St. Armand, Missisquoi county, Q.
     —Cambrian, C 3. Polished slab, 12 by 12 inches. (725.)
  - White, veined with pale green.—St. Armand, Missisquoi county, Q.
     —Cambrian, C 3. Polished slab, 18 by 12 inches. (727.)
  - Dove-grey, marked with white.—St. Armand, Missisquoi county, Q.
     —Cambrian, C 3. Polished slab, 18 by 12 inches. (767.)
  - Bluish-grey and bluish-ash, mottled, with brownish-yellow veinings.
    —St. Armand, Missisquoi county, Q.—Cambrian, C 3.
    Polished slab, 18 by 12 inches. (782.)
  - Dark grey, with clove-brown spots—fossiliferous.—Montreal, Hochelaga county, Q.—Cambro-Silurian, D 2. Polished slab, 29 by 12 inches. (784.)
  - Ash-grey.—Gloucester, Carleton county, O.—Cambro-Silurian, D 1.
     Polished slab, 18 by 12 inches. (797.)
     Pale bluish-white, flecked with black.—Lot 11, range II. of Horton,
  - Pale bluish-white, flecked with black.—Lot 11, range II. of Horton, Renfrew county, O.—Laurentian, A. Polished slab, 18 by 12 inches. (806.)
  - Brownish-black, with dark brownish-black clouding.—Cornwall,
     Stormont county, O.—Cambro-Silurian, D 1. Polished slab,
     18 by 12 inches. (808.)
  - Dark brownish-grey, with white markings.—Cornwall, Stormont county, O.—Cambro-Silurian, D 1. Polished slab, 18 by 12 inches. (809.)
  - Light greyish-white, speckled.—Elzevir, Hastings county, O.—
     Laurentian, A. Polished slab, 27 by 15 inches. (814.)
  - Light brownish ash-grey, with dark grey and white spots; fossil-iferous.—L'Orignal, Prescott county, O.—Cambro-Silurian, D 1. Polished slab, 14½ by 11 inches. (870.)
  - Dark brownish-black.—Pointe Claire, Jacques-Cartier county, Q.—
     Cambro-Silurian, D 1. Polished slab, 18 by 12 inches. (871.)
  - Brownish ash-grey.—Esquimaux Island, seigniory of Mingan, Q.—
     Cambro-Silurian, D 1. Polished slab, 18 by 12 inches. (872.)
  - Dark grey; fossiliferous.—Caughnawaga, Laprairie county, Q.—
     Cambro-Silurian, D 1. Polished slab, 18 by 12 inches. (873.)
  - Ashen grey, with pinkish and red spots; fossiliferous.—Caughnawaga, Laprairie county, Q.—Cambro-Silurian, D 1. Polished slab, 18 by 12 inches. (875.)
  - White, veined with pale green.—St. Armand, Missisquoi county, Q.
     —Cambrian, C 3. Polished slab, 15½ by 11 inches. (876.)
  - Greyish-black, with brownish-black clouding.—Mille Roches, Cornwall, Stormont county, O.—Cambro-Silurian, D 1. Polished slab, 16 by 11 inches. (877.)

#### Limestone Marbles-Continued.

- Limestone—Light greenish-white to almost white, with dark greenish and brownish spots.—Grenville, Argenteuil county, Q.—Laurentian, A. Polished slab, 13½ by 11 inches. (878.)
  - Bluish-grey and bluish-ash, mottled, with brownish-yellow veinings.
     —St. Armand, Missisquoi county, Q.—Cambrian, C 3.
     Polished slab, 15 by 11 inches. (879.)
  - Light purplish-white, light grey and bluish-grey, mottled, with brownish-yellow veinings.—Lot 22, range VII. of Dudswell, Wolfe county, Q.—Silurian, E 3. Polished slab, 18 by 12 inches. (880.)
  - Very pale brownish-yellow, with brownish-yellow and light to dark bluish-grey veinings.—Lot 22, range VII. of Dudswell, Wolfe county, Q.—Silurian, E 3. Polished slab, 18 by 12 inches. (881.)
  - Light, dark grey, greyish-black, and light and dark brownish-yellow, mottled.—Lot 22, range VII. of Dudswell, Wolfe county, Q.—Silurian, E 3. Polished slab, 18 by 12 inches. (882.)
  - Greyish-black, with brownish-black clouding and white markings;
     fossiliferous.—Lot 22, range VII. of Dudswell, Wolfe county,
     Q.—Silurian, E 3. Polished slab, 18 by 12 inches. (883.)
  - White to faint greenish-white, with brown and blackish specks.—
     Lot 22, range VII. of Dudswell, Wolfe county, Q.—Silurian,
     E 3. Polished slab, 18 by 12 inches. (884.)
  - Dark grey to light greyish-black, with white markings; fossili-ferous.—Montreal, Hochelaga county, Q.—Cambro-Silurian,
     D. Polished slab, 29 by 18 inches. (886.)
  - Very pale brownish-yellow, with brownish-yellow and light to dark bluish-grey veinings.—Lot 22, range VII. of Dudswell, Wolfe county, Q.—Silurian, E 3. Polished slab, 47 by 25½ inches. (887.)
  - Greyish-white.—Marble Mountain, Bras d'Or Lake, Cape Breton,
     N.S.—Pre-Cambrian, A.B. Polished slab, 18½ by 18½ inches.
     (888.)
  - Whitish to bluish-grey, with light and dark bluish-grey markings.
     —Arnprior, Renfrew county, O.—Laurentian, A. Polished slab, 47 by 24 inches. (891.)
  - Light purplish-brown, bluish-grey light to dark, with brownishyellow and whitish veinings.—Lot 22, range VII. of Dudswell, Wolfe county, Q.—Silurian, E 3. Polished slab, 30 by 6½ inches. (894.)
  - Sepia brown, with brownish-black clouding.—Pakenham, Lanark county, O.—Cambro-Silurian, D 1. Polished slab, 29 by 8<sup>3</sup>/<sub>4</sub> inches. (895.)
  - -- Dark grey and greyish-black, mottled; fossiliferous.—Lot 12, range VI. of Dudswell, Wolfe county, Q.—Silurian, E 3. Polished slab, 18 by 15 inches. (897.)
  - Light bluish-grey and bluish-ash, mottled, with light and dark grey veinings.—From near Beaver Cove, north-east coast of Vancouver 1sland, B.C.—Coll., G. M. Dawson, 1885.
     Polished slab, 18 by 12 inches. (898.)
  - Light greyish-white and bluish-ash, clouded, with bluish-grey and brownish veins.—Texada Island, Strait of Georgia, B.C.— Carboniferous, G? Polished slab, 18 by 12 inches. (901.)
  - Light and dark bluish-ash, clouded, with greyish-black spots and veinings.—Texada Island, Strait of Georgia, B.C.—Carboniferous, G? Polished slab, 18 by 12 inches. (903.)

## Limestone Marbles-Continued.

- Limestone—Dark greyish-black, with light greyish, brownish-yellow and white markings, and bluish-ash fossils.—Dudswell, Wolfe county, Q.—Silurian, E 3. Polished slab, 24 by 14 inches. (904.)
  - Brownish-grey, with white and pale brownish fossils.—Departure
    Bay, Nanaimo, Vancouver Island, B.C.—Coll., G. M. Dawson, 1885.—Polished slab, 18 by 104 inches. (905.)
  - Light greyish-white.—Elzevir, Hastings county, O.—Laurentian,
     A. Polished slab, 18 by 12 inches. (906.)
  - Purplish-grey, bluish-grey, whitish, and light and dark greyish-black blotches and inclusions, and white and brownish-yellow veinings.—Lot 22, range VII. of Dudswell, Wolfe county, Q.—Silurian, E 3. Polished slab, 29 by 14 inches. (908.)
  - White.—St. Armand, Missisquoi county, Q.—Cambrian, C 3.
    Polished slab, 29 by 15 inches. (912.)
  - Light purplish-brown, bluish-grey light to dark, with brownish-yellow and whitish veinings.—Lot 22, range VII. of Dudswell, Wolfe county, Q.—Silurian, E 3. Polished slab, 29 by 15 inches. (916.)
  - Light greyish-white, speckled.—Elzevir, Hastings county, O.— Laurentian, A. Polished slab, 29 by 14 inches. (917.)
  - Whitish calcite, flecked and spotted with brownish-yellow serpentine,—Grenville, Argenteuil county, Q.—Laurentian, A. Polished slab, 18 by 12 inches. (919.)
  - Light bluish to purplish-grey calcite, with light and dark yellowish and olive-green serpentine.—Lot 1, range I. of the Augmentation of Grenville, Argenteuil county, Q.—Laurentian, A.—Coll., C. W. Willimott, 1885. Polished slab, 18 by 12 inches. (922.)
  - Light greyish-white calcite, with clouding of pale greenish and olive-green serpentine,—Grenville, Argenteuil county, Q.—
     Laurentian, A. Polished slab, 18 by 12 inches. (924.)
  - Light greenish-white to almost white, with dark greenish and brownish spots.—Grenville, Argenteuil county, Q.—Laurentian, A. Polished slab, 18 by 12 inches. (925.)
  - Light grey to light purplish-grey calcite, and olive-green serpentine.
     Grenville, Argenteuil county, Q.—Laurentian, A. Polished slab, 18 by 12 inches. (926.)
  - Brownish-black, with dark brownish-black markings; fossiliferous.
     Cornwall, Stormont county, O.—Cambro-Silurian, D 1.
     Polished slab, 29 by 17 inches. (929.)
  - Greyish-black, with brownish-black clouding.—Mille Roches, Cornwall, Stormont county, O.—Cambro-Silurian, D 1. Polished slab, 32 by 18 inches. (930.)
  - Light brownish ash-grey, with whitish and brownish inclusions;
     fossiliferous.—Large Island, Seigniory of Mingan, Q.—
     Cambro-Silurian. D 1. Polished slab, 18 by 12 inches. (936,)
  - Dark brownish-grey, with brownish-black clouding.—Pointe Claire,
     Jacques Cartier county, Q.—Cambro-Silurian, D 1. Polished
     slab, 29 by 16½ inches. (954.)
  - Dark brownish-grey.—Cornwall, Stormont county, O.—Cambro-Silurian, D 1. Polished slab, 17 by 10½ inches. (955.)
  - Light reddish-brown, with greenish-grey and white veins and markings.—Lot 22, range VII. of Shipton, Richmond county, Q.—Cambrian, C 1. Polished slab, 18 by 12 inches. (961.)
  - Light and dark purplish-red, white, and light green.—Lot 22, range
     VII. of Shipton, Richmond county, Q.—Cambrian, C 1.
     Polished slab, 18 by 12 inches. (962.)

#### Limestone Marbles-Continued.

- Limestone—White, light purplish-grey, purplish and light green.—Lot 22, rauge VII. of Shipton, Richmond county, Q.—Cambrian, C 1. Polished slab, 18 by 12 inches. (963.)
  - Very pale brownish-yellow, with brownish-yellow, and light to dark bluish-grey veinings.—Lot 22, range VII. of Dudswell, Wolfe county, Q.—Silurian, E 3. Polished slab, 14½ by 11 inches. (976.)
  - Dark brownish-grey, with brownish-black clouding.—Pointe Claire, Jacques Cartier county, Q.—Cambro-Silurian, D 1. Polished slab, 12 by 11<sup>3</sup>/<sub>4</sub> inches. (989.)
  - Light grey to light purplish-grey calcite, and olive-green serpentine.
     —Grenville, Argenteuil county, Q.—Laurentian, A. Polished slab, 14 by 10<sup>3</sup>/<sub>4</sub> inches. (991.)
  - Light reddish-brown, with greenish-grey and white veins.—Lot 3, range I. of Kingsey, Drummond county, Q.—Cambrian, C. Polished slab, 18 by 12 inches. (992.)
  - White (in parts purplish) calcite, spotted with pale olive-green serpentine.—Lot 14, range IX. of Hull, Ottawa county, Q.—Coll., C. W. Willimott, 1885—Laurentian, A. Polished slab, 18 by 12 inches. (993.)
  - Light to dark reddish-brown, with veins of white calcite.—Lot 3, range I. of Kingsey, Drummond county, Q.—Cambrian, C. Polished slab, 18 by 12 inches. (996.)
  - Dove-grey, marked with white.—St. Armand, Missisquoi county, Q-Cambrian, C 3. Polished slab, 29 by 10 inches. (997.)
  - Dark brownish-grey, with brownish-black clouding.—Pointe Claire,
     Jacques Cartier county, Q.—Cambro-Silurian, D 1. Polished
     slab, 18 by 12 inches. (1144.)
  - Pinkish-white, penetrated by crystals of light greenish-grey tremolite.—Lot 28, rauge IX. of Barrie, Frontenac county, 0.—
     Laurentian, A. Polished slab, 18 by 12 inches. (1148.)
  - Light to dark reddish-brown, with veins of white calcite.—Lot 1, range VIII. of Durham, Drummond county, Q.—Cambrian, C. Polished slab, 18 by 12 inches. (1160.)
  - Dark grey, with dark brownish-grey clouding and some greyish spots; fossiliferous.—Terrebonne, Terrebonne county, Q.—Cambro-Silurian, D 1. Polished slab, 18 by 12 inches. (1185.)
    - Light to dark brownish-red, with white veinings.—St. Joseph,
      Beauce county, Q.—Cambrian, C. Weathered slab, 29 by
      15½ inches. (4863.)
  - Ash-grey, with dark grey and white spots, and network of light greenish-grey; fossiliferous.—L'Orignal, Prescott county, O.
     —Cambro-Silurian, D 1. Weathered slab, 29 by 14½ inches.

     (4864.)
  - White, with light and dark bluish-grey markings (banded structure).
     —East half of lot 21, range X. of Lanark, Lanark county, O.
     —Coll., C. W. Willimott, 1885.—Laurentian, A. Polished slab, 18 by 7 inches. (4876.)
    - Dark brownish-black, mottled.—St. Armand, Missisquoi county, Q.—Cambrian, C 3.—Polished slab, 18 by 12 inches. (4868.)
    - Dove-grey.—St. Dominique, Soulanges county, Q.—Cambro-Silurian, D 1. Polished slab, 18 by 12 inches. (4869.)
  - Ash-grey, with dark grey and white spots, and network of light greenish-grey; fossiliferous.—L'Orignal, Prescott county, O.—Cambro-Silurian, D 1. Polished slab, 18 by 12 inches. (4870.)

#### Limestone Marbles-Continued.

- Limestone—Brownish-black, with dark brownish-black clouding.—Pointe Claire,
  Jacques Cartier county, Q.—Cambro-Silurian, D 1. Polished
  slab, 18 by 12 inches. (4871.)
  - Ashen grey, with pinkish and red spots; fossiliferous.—Caughnawaga, Laprairie county, Q.—Cambro-Silurian, D 1. Polished slab, 29 by 174 inches. (4872.)
  - White, and light bluish-grey, with dark bluish-grey markings.—

    East half of lot 21, range X. of Lanark, Lanark county, O.—

    Coll., C. W. Willimott, 1885.—Laurentian, A. Polished slab, 18 by 12 inches. (4875.)
  - Light to dark brownish-red, with white veinings.—St. Joseph, Beauce county, Q.—Cambrian, C 1. Polished slab, 25 by 16 inches. (4877.)
  - Dark greyish-black, with light greyish, brownish-yellow and white markings.—Dudswell, Wolfe county, Q.—Presented by the Dudswell Marble and Lime Company, 1886.—Silurian, E 3. Polished slab, 23 by 9 inches. (4878.)
  - Light bluish-grey, with dark grey veins, wavy structure.—Lot 1, range VIII. of Madoc, Hastings county, O.—Coll., C. W. Willimott, 1885.—Laurentian, A. (4879.)
  - Light to dark brownish-red, with white veinings.—St. Joseph,
    Beauce county, Q.—Cambrian, C 1. Polished slab, 18 by 12
    inches. (4880.)
  - Coralline.—Bluish-grey, with light and dark greyish-black markings,
     and brownish-yellow veinings.—Dudswell, Wolfe county, Q.
     —Silurian, E 3. Polished slab, 18 by 12 inches. (4881.)
  - Light to dark bluish-grey, with veinings of white calcite.—Dudswell, Wolfe county, Q.—Presented by the Dudswell Marble and Lime Company.—Silurian, E 3. Polished slab, 21 by 8½ inches. (4882.)
  - Pale and dark salmon-red.—Ironsides, Hull, Ottawa county, Q.—
     Coll., C. W. Willimott, 1885.—Laurentian, A. Polished slab, 24½ by 12 inches. (4961.)
  - Light brown to brownish-red. with reddish-brown, white, and greyish inclusions; fossiliferous.—St. Lin, L'Assomption county, Q.—Cambro-Silurian, D 1. Polished slab, 56 by 24½ inches. (4962.)

## Serpentine Marbles.

- Serpentine.—Light and dark green.—Lot 21, range VI. of Melbourne, Richmond county, Q.—Cambrian, C 1. Polished slab, 29 by 12 inches. (783.)
  - -- Light and dark green, brecciated.—Lot 6, range XIII. of Orford, Sherbrooke county, Q.—Cambrian C 1. Polished slab, 29 by 15½ inches. (810.)
  - Light and dark green, with veins of white calcite (Verd Antique).
     Lot 22, range VI. of Melbourne, Richmond county, Q.—
     Cambrian. C 1. Polished slab, 29 by 18 inches. (885.)
  - Light and dark green, brecciated, with inclusions of white calcite (Verd Antique).—Lot 12, range VIII. of Orford, Sherbrooke county, Q.—Cambrian, C 1. Polished slab, 40 by 19 inches. (890.)
  - Light and dark green, brecciated, with veins of white calcite.—
     Lot 6, range XIII. of Orford, Sherbrooke county, Q.—
     Cambrian, C 1. Polished slab, 47 by 25½ inches. (893.)

#### Serpentine Marbles-Continued.

- Serpentine—Light and dark green, with light greenish-grey markings.—Lot 20, range X. of Melbourne, Richmond county, (λ.—Cambrian, C 1. Polished slab, 18 by 12 inches. (907.)
  - Light purplish-grey, light green, and light and dark greenish-grey.

    —Lot 20, range V. of Melbourne, Richmond county, Q.—
    Cambrian, C1. Polished slab, 18 by 12 inches. (913.)
  - Light and dark green.—Lot 21, range VI. of Melbourne, Richmond county, Q.—Cambrian, C1. Polished slab, 18 by 12 inches. (931.)
  - Light and dark green and greenish-grey to grey, brecciated.—Lot
     15, range XVIII. of Orford, Sherbrook county, Q.—Cambrian,
     C 1. Polished slab, 18 by 12 inches. (932.)
  - Light and dark green, with network and veinings of light greyish-green.—Lot 6, range XIII. of Orford, Sherbrooke county, Q.—Cambrian, C 1. Polished slab, 18 by 12 inches. (933.)
  - Greenish-grey and light green, with dark green and greenish-black inclusions and markings.—Lot 5, range B. of Orford, Sherbrooke county, Q.—Cambrian, C I. Polished slab, 18 by 12 inches. (934.)
  - Light to dark reddish-brown, with light green and white veinings.
     Lot 7, range A. of Orford, Sherbrooke county, Q.—Cambrian, C 1. Polished slab, 18 by 12 inches. (935.)
  - Pale olive-green and light to dark brownish-yellow, with inclusions and veinings of light to dark green serpentine.—Lot 21, range VI. of Melbourne, Richmond county, Q.—Cambrian, C 1. Polished slab, 18 by 12 inches. (937.)
  - Greenish-grey, light green and dark greyish-green, with inclusions of white and bluish-grey calcite.—Lot 5, range B. of Orford, Sherbrooke county, Q.—Cambrian. Cl. Polished slab, 18 by 12 inches. (938.)
  - Light purplish and greenish-grey, with inclusions of white (calcite) and dark green and greenish-black.—Lot 6, range XIII. of Orford, Sherbrooke county, Q.—Cambrian, C 1. Polished slab, 18 by 12 inches. (940.)
  - Light green and greenish-grey, with markings of white calcite.—
     Lot 6, range XIII. of Orford, Sherbrooke county, Q.—
     Cambrian, C 1. Polished slab, 18 by 12 inches. (944.)
  - Greenish-grey, light green and dark greyish-green, with inclusions of white calcite, structure in parts brecciated.—Lot 5, range B. of Orford, Sherbrooke county, Q.—Cambrian, C 1. Polished slab, 18 by 12 inches. (948.)
  - Dark green, with olive and light green network, brecciated.—Lot
     15, range XVIII. of Orford, Sherbrooke county, Q.—Cambrian,
     C 1. Polished slab, 29 by 18 inches. (950.)
  - Olive-green, and light and dark green.—Lot 8, range III. of Shipton, Richmond county, Q.—Cambrian, C 1.—Polished slab, 18 by 12 inches. (960.)
  - Dark green, with network of olive and light green, and inclusions of white calcite, brecciated.—Lot 6, range XIII. of Orford, Sherbrooke county, Q.—Cambrian C 1. Polished slab, 11½ by 8¼ inches. (964.)
  - Light and dark green.—South Ham, Wolfe county, Q.—Cambrian, C1. Polished slab, 14½ by 7 inches. (988.)
  - Light and dark green, with light greenish-grey markings.—Lot 20, range V. of Melbourne, Richmond county, Q.—Cambrian, C 1. Polished slab, 29 by 10 inches. (1143.)

## Serpentine Marbles-Continued.

Serpentine—Light brownish-green and light green, with inclusions of calcite.— Orford, Sherbrooke county, Q.—Cambrian, C 1. Polished slab, 13 by 10 inches. (4867.)

Light and dark green.—Orford, Sherbrooke county, Q.—Cambrian, C l. Polished slab, 29 by 18 inches. (4873.)

- Light and dark green, with inclusions of white calcite, brecciated, (Verd Antique).—Lot 7, range VIII. of Orford, Sherbrooke county, Q.—Cambrian, C 1. Polished slab, 43½ by 15 inches. (4963.)
- Dark green, with olive and light green network, brecciated.—Lot 6, range XIII. of Orford, Sherbrooke county, Q.—Cambrian, C
   Polished block, 18 by 14 by 2 inches. (5035.)
- Light and dark green, with purplish-brown markings.—Brompton
  Lake, Orford, Sherbrooke county, Q.—Cambrian, C 1.
  Polished block, 18 by 12 by 4 inches. (5036.)

Jasper conglomerate.—Bruce Mines, Lake Huron, district of Algoma, O.—Huronian, B. Polished block, 18 by 15 by 4 inches. (5037.)

Volcanic breccia.—Made up of brownish-red, brownish-yellow, reddish-brown, greenish-grey, brown (sepia) and red fragments and particles.

—From one of the Ballinac Islands, B.C. Polished slab, 18 by 12 inches. (899.)

Polished columns and pedestals of limestone and serpentine marbles and of other ornamental stones occupy a position immediately in front of some of the windows, also at either end of the central series of table-cases, and occasionally against the wall.

The following series of cut and polished specimens of:

### ARCHEAN AND PALÆOZOIC BOCKS.

are arranged in a frame attached to the wall.

#### PRE-CAMBRIAN ROCKS.

## Laurentian Rocks.

Felspar-porphyry	–Chatham, A	Argenteuil	l county, Q.	(1025.)	
	do	do	do	(1026.)	
-	do	do	do	(1027.)	
enna.	Grenville	do	do	(1028.)	
	do	do	do	(1029.)	
_	do	do ·	do	(1032.)	
Diorite.—Bradore B	ay, Saguenay	county,	Q. (1030.)		
Syenitic-porphyry.	—Great Med	eatina Ha	rbour, Sagu	enay county, Q.	(1031.)
Conglomerate.—We		do	do	(1033.)	
Siliceous breccia.—	Grenville	do	do	(1034.)	
Agglomerate.—	do	do	do	(1035.)	
	do	do	do	(1036.)	
Limestone.—Arnpri	or, Renfrew	county, O	. (1037.)		
Garnetiferous gneis	ss.—River R	ouge, Arg	enteuil coun	ity, Q. (1038.)	
Albite (peristerite)	-Bathurst, I	anark cou	inty, O. (1	039.)	
Perthite.—North Bu				1040.)	

#### ARCHEAN AND PALÆOZOIC BOCKS-Continued.

## PRE-CAMBRIAN ROCKS-Continued.

#### Laurentian Rocks-Continued.

Anorthosite.—Wolfe, Argenteuil county, Q. (1041.)

Peribonka River, Lake St. John, Chicoutimi county, Q. (1042.)

Gneiss.—Goules Island. (1043.)

Grenville, Argenteuil county, Q. (1044.)

Saguenay county, Q. (1045.)

Batchewahnung Bay, Lake Superior, O. (1046.)

North shore of Lake Huron, O. (1048.)

Great Mecatina River, Saguenay county, Q. (1049.)

Chatham, Argenteuil county, Q. (1052.)

Watcheeshoo Bay, Mingan, Saguenay county, Q. (1053.)

Harrington, Argenteuil county, Q. (1054.)

Ramsay, Lanark county, O. (1055.)

Ha-ha Bay, Saguenay county, Q. (1056.)

do do Mingan (1057.)

Ramsay, Lanark county, O. (1058.)

Wilson's camp. (1059.)

Manitou River, Mingan, Saguenay county, Q. (1060.)

Saguenay county, Q. (1062.)

Watcheeshoo Bay, Mingan, Saguenay county, Q. (1063.)

Grenville, Argenteuil county, Q. (1064.)

do do do (1065.)

Mutton Bay, Saguenay county, Q. (1066.) Esquimaux Bay, Saguenay County, Q. (1068.)

Banded quartzite.—Pillage Bay, Mingan, Saguenay county, Q. (1061.)

Granite.—Goddard Island, Labrador. (1047.)

Gananoque, Leeds county, O. (1050.)

Granitic veinstone.—Wentworth, Argenteuil county, Q. (1067.)

Veinstone.—Lake St. John, Chicoutimi county, Q. (1051.)

## Huronian Rocks.

Diabase porphyry.—Batchewahnung Bay, Lake Superior, O.

Breccia.—Drummondville, Drummond county, Q. (1070.)

Cupriferous breccia.—Acton, Bagot county, Q. (1071.)

Breccia.—Wendover, Drummond county, Q. (1072.)

Belœil, Rouville county, Q. (1073.)

do do do (1074.)

Farnham, Brome do (1075.)

Limestone breccia.—Ste. Marguerite, Dorchester county, Q.

Breccia.—Kingsey, Richmond county, Q. (1077.)

Drummondville, Drummond county, Q. (1078)

Serpentine.—Cleveland, Richmond county, Q. (1079.)

Melbourne, do do (1080.)

Porphyry.—Drummondville, Drummond county, Q. (1081.)

Amygdaloid.—Maddington Mines, Nicolet county, Q. (1082.)

Diorite breccia.—Wendover, Drummond county, Q. (1083.)

Porphyry.—Drummondville do do (1084.)

## ARCHEAN AND PALÆOZOIC ROCKS-Continued.

#### PRE-CAMBRIAN ROCKS-Continued.

## Huronian Rocks-Continued.

Huronian Rocks-Contin	nued.	
Diorite.—Melbourne, Richmond county, Q. (1085)	5.)	
Quartzite.—Loc. ? (1086.)		
Granite.—Cleveland, Richmond county, Q. (1087.	.)	
Granitoid conglomerate.—St. Gervais, Bellechas	sse county, Q.	(1088.)
Limestone.—Stukely, Shefford county, Q. (1089.)	)	
Conglomerate.—Mississagui River, Lake Huron, O	0. (1090.)	
Limestone.—Portlock Harbour do	(1091.)	
Jasper conglomerate.—Bruce Mines do	(1092.)	
Conglomerate.— do do	(1093.)	
Jasper conglomerate.— do do	(1094.)	
Quartz conglomerate.— do do	(1095.)	
Felspathic sandstone.—Walker's Lake, district of		(1096.)
Altered sandstone.—Echo Lake, district of Algo	oma, O. (1097.)	
Schist.—St. John, St. John county, N.B. (1098.)	,	
Breccia.—Batchewahnung Bay, Lake Superior, O.		
Indurated slate.—Sturgeon River, district of Nip	oissing, O. (1100	).) '
Blackish-green serpentinePistolet Bay, Newf		
Fine grained greenish felspathic rock.—Pistolet	Bay, Newfound	land. (1102.)
Olive-green, fine grained calcareous diorite.—		(111001)
Greyish-green diorite.—		o (1104.)
Fine grained calcareous diorite.—	do d	o (1105.)
Fine grained felspathic rock.—		(1106.)
Black slate, with greyish-black clouds.—		(1107.)
Serpentine, traversed by bands of diorite.—		(1108.)
Fine grained black slate.—		(1109.)
Gneiss.—Portlock Harbour, Lake Huron, O.—	do de	(1122.)

#### CAMBRIAN ROCKS.

Amygdaloid.—Harmony River, Lake Superior, O. (1110.)

Trap.—Victoria Island, Lake Superior, O. (1111.)

Limestone.—St. Armand, Missisquoi county, Q. (1112-1118.)

Quartz conglomerate.—St. Nicholas, Lévis county, Q. (1119.)

Porphyritic diorite.—Gaspé county, Q. (1120.)

Calcareous slate.—Martin River, Christie, Gaspé county, Q. (1121.)

Coarsely crystalline red dolomite.—Marquette, Lake Superior (south shore).
(1123.)

Grey chert, banded with red dolomite.—Marquette, Lake Superior (south shore). (1124.)

## BRICK-CLAYS AND BRICKS, COMMON AND ORNA-MENTAL, AND DRAIN-TILES.

Upright wing-case 16.

Brick-clay.—Salt Springs, parish of Dorchester, Antigonish county, N.S. (5337.)

(1) Brick (red) made from clay No. 5337.—D. Chisholm, 1886. (5337a.)

#### BRICK-CLAYS AND BRICKS, ETC.-Continued,

Brick-clay—Antigonish, Antigonish county, N.S. (5394.)

(1) Brick (red) made from clay No. 5394.—Samuel Hulbert, 1886. (5394a.)

Upright wing-case 16.—
Continued.

- Claremont, Cumberland county, N.S. (5126.)
- Avonport, King's county, N.S.—Jacob Walton, 1885. (5172.)
- River Denys, near the cross road, Inverness county, N.S.—Presented by Hon. W. McDonald, 1885. (3601.)
- From the mouth of the harbour, Charlottetown, Queen's county, P.E.I. (4937.)
- Fredericton, York county, N.B.—Coll., R. Chalmers, 1884. (4948.)
- Fairville, St. John county, N.B.—Coll., R. Chalmers, 1884. (4949.)
  - (1) Flooring tile (red) made from clay No. 4949. J. Lee & Co., 1885. (4949a.)
- Lewisville, Westmoreland county, N.B.—Coll., R. Chalmers, 1884. (4950.)
- Vicinity of Three Rivers, St. Maurice county, Q.—brick made from. (604.)
- St. John's, St. John's county, Q.—A. Mochon, 1875. (619.)
- St. John's do do —employed for pottery.—E. H. and L. E. Farrar, 1875. (1139.)
- Montreal, Hochelaga county, Q. (601.)
  - (1) Brick (red) made from clay No. 601.—Bulmer and Sheppard, 1875. (601a.)
- Montreal, Hochelaga county, Q.—employed for pottery.—R. Bannerman, 1875. (1146.)
- Yamaska, Yamaska county, Q.—brick (red) glazed, made from. (609.)
- St. Jean, Lotbinière county, Q. (1140.)
  - Lot 20, range III. of Kenyon, Glengarry county, O. (5146.)
    - (1) Stock brick (red), machine-made, made from clay No. 5146.

      —D. McGillivray, Athol Brick Yard, 1885. (5146a.)
- Lot 10, range V. of Russell, Russell county, O. (5177.)
  - (1) Stock brick (red), machine-made, made from clay No. 5177.—H. Rombaugh, 1885. (5177a.)
- New Edinburgh, Carleton county, O. (1198.)
  - (1) Marl, New Edinburgh, Carleton county, O. (1198a.)
  - (2) Ornamental bricks (white), made from clay No. 1198 by admixture of same with a calcareous marl—No. 1198a. —T. M. Clarke. (1198b.)
- Archville, Nepean, Carleton county, O. (5073.)
  - (1) Stock brick (red), machine-made, made from clay No. 5073.—H. C. Odell, Ottawa, O., 1885. (5073a.)
- Bell's Corners, Nepean, Carleton county, O. (1142.)
- Richmond, Goulburn do do (5179.)
  - (1) Stock brick (red), machine-made, made from clay No. 5179.—H. McElroy & Son, 1885. (5179a.)
- Lot 17, range XI. of Beckwith, Lanark county, O.—W. Willoughby, Carleton Place, O., 1885. (5071.)
- Lot 14, range VIII. of Ramsay, Lanark county.—J. Metcalfe, 1875. (1136.)
- Lot 20, range VIII. of Ramsay, Lanark county, O.—David Moore, Almonte, O., 1885. (5069.)
- Pembroke, Renfrew county, O. (5072.)
  - (1) Stock brick (red), hand-made, made from clay No. 5072.— Thomas Cashmore, 1885. (5072a.)

## BRICK-CLAYS AND BRICKS, ETC .-- Continued.

Upright wing-case 16.—
Continued.

Brick-clay—Lot 30, range I. of Stafford, Renfrew county, O.—Jas. Johnson, Pembroke, O. (5068.)

East half of lot 7, range XIII. of McNab, Renfrew county, O.—Wm. Baker, Arnprior, O., 1885. (5070.)

Brockville, Leeds county, O. (5173.)

(1) Brick (white) made from clay No. 5173.—A. Odell, 1885. (5173a.)

Brockville, Leeds county, O. (5175.)

(1) Brick (red) made from clay No. 5175. (5175a.)

-- Kingston, Frontenac county, O. (4956.)

- (1) Stock brick (red), hand-made, made from clay No. 4956.
  —Johnson Day, Waterloo, O., 1885. (4956a.)
- (2) Soft brick (red), made from clay No. 4956.—J. McMichael, Kingston, O., 1885. (4956b.)
- (3) Stock brick (red), machine-made, made from clay No. 4956.—Edward Riley, Cataraqui, O., 1885. (4956c.)

Bloomfield, Hallowell, Prince Edward county, O. (5154.)

(1) Stock brick (red), machine-made, made from clay No. 5154.—A. B. Saylor, 1885. (5154a.)

Belleville, Thurlow, Hastings county, O. (4957.)

- (1) Unburnt brick, made from clay No. 4957. (4957a.)
- (2) Stock brick (red), machine-made, made from clay No. 4957. (4957b.)
- (3) Stock brick (red), hand-made, made from clay No. 4957. (4957c.)
- (4) Pressed brick (red), made from clay No. 4957.—C. H. La Roche & Co., 1885. (4957d.)
- (5) Ornamental brick (red), made from clay No. 4957.—N. Lingham, 1885. (4957e.)

Lot 12, range I. of Rawdon, Hastings county, O. (5162.)

- (1) Stock brick (red), machine-made, made from clay No. 5162.—R. Langman, 1885. (5162a.)
- East half of lot 32, range XII. of Otonabee, Peterborough county, O. (5160.)
  - (1) Stock brick (red), machine-made, made from clay No. 5160.—M. Curtis & Sons, 1885. (5160a.)

Darlington, Durham county, O. (5166.)

(1) Stock brick (red), made from clay No. 5166.—R. Hambly, Bowmanville Brick and Tile Yard, 1885. (5166a.)

Penetanguishene, Simcoe county, O. (5168.)

(1) Stock brick (red), machine-made, made from clay No. 5168.—C. Beck & Co., 1885. (5168a.)

Hamilton, Barton, Wentworth county, O. (4951.)

- (1) Stock brick (red), machine-made, made from clay No. 4951.

  -W. Hancock, 1885. (4951a.)
- (2) Pressed brick (red), made from clay No. 4951. (4951b.)
- (3) Ornamental brick (red), made from clay No. 4951.—Isaac Beers, 1885. (4951c.)
- (4) Pressed brick (white), made from clay No. 4951.—F. Childs, 1885. (4951d.)

Owen Sound, Grey county, O. (1131.)

- (1) Stock brick (red), machine-made, made from clay No. 1131. (1131a.)
- (2) Pressed brick (red), made from clay No. 1131. (1131b.)
- (3) Stock brick (white), made from clay No. 1131, employing a different sand. (1131c.)

## BRICK-CLAYS AND BRICKS, ETC.—Continued.

Brick-clay-Brant, Bruce county, O. (5156.)

(1) Stock brick (white), machine-made, made from clay No. 5156.—Charles Scarborough, Hanover Brick Yard, 1885. (5156a.)

Upright wing-case 16.—
Continued.

- Port Elgin, Bruce county, O. (5158.)

- (1) Stock brick (white), machine-made, made from clay No. 5158.—Henry Smith, 1885. (5158a.)
- Kincardine, Bruce county, O.—George Riggins, 1875. (1137.)

-- Stephen, Bruce county, O. (5164.)

- (1) Pressed brick (white), made from clay No. 5164. (5164a.)
- Limehouse, Halton county, O (558, 602.)
- suitable for the manufacture of terra cotta.—East half of lot 2, range VII. of Nassagaweya, Halton county, O. (970.)
  - (1) Ornamental bricks, made from clay No. 970. (970a.)
  - (2) Medallions, made from clay No. 970. (970b.)—Toronto PressedBrick and Terra Cotta Company—Works, Milton, O.—Presented by Hon. G. C. McKindsey, 1890.

Yorkville, Toronto, York county, O. (556.)

- (1) Stock brick (white), machine-made, made from clay No. 556.—Wm. Greensides, 1885. (556a.)
- (2) Stock brick (white), machine-made, made from clay No. 556.—T. Nightingale, 1885. (556b.)
- (3) Stock brick (white), machine-made, made from clay No. 556.—J. Gibson, 1885. (556c.)
- (4) Pressed brick (white), made from clay No. 556.—Yorkville and Carlton Brick Manufacturing Company, 1885. (556d.)
- (5) Drain-tiles (white), made from clay No. 556.—T. Nightingale, 1885. (556e.)
- (6) Drain-tiles (white), made from clay No. 556.—Bulmer and Douglas. (556f.)
- (7) Drain-tiles (white), made from clay No. 556.—J. Sheppard, 1885. (556g.)
- Yorkville, Toronto, York county, O. (1134.)
  - (1) Stock brick (red), machine-made, made from clay No. 1134. —Wm. Greensides, 1885. (1134a.)
  - (2) Drain-tiles (red), made from clay No. 1134.—T. Nightingale, 1875. (1134b.)
- Leslie Street, Toronto, York county, O. (4952.)
  - (1) Stock brick (grey), machine-made, made from clay No. 4952.—J. Price, 1885. (4952a.)
- Leslie Street, Toronto, York county, O. (4953.)
  - (1) Stock brick (mottled), machine-made, made from a mixture of clays Nos. 4952 and 4953.—J. Cook, 1885. (4953a.)
- Doncaster, York county, O. (4954.)
  - (1) Stock brick (red), hand-made, made from clay No. 4954.— H. P. Phillips, 1885. (4954a.)
- Carlton West, York county, O. (4955.)
  - (1) Stock brick (red), machine-made, made from clay No. 4955.

    —Yorkville and Carlton Brick Manufacturing Company. (4955a.)
  - (2) Pressed brick (red), made from clay No. 4955. (4955b.)
  - (3) Ornamental brick (red), made from clay No. 4955.—Geo. Townsley, 1885. (4955c.)
  - (4) Ornamental brick (red), made from clay No. 4955. (4955d.)

Upright wing-case 17.

# BRICK-CLAYS AND BRICKS, ETC.-Continued.

Upright wing-case 17.-Continued.

Brick-clay—('arlton West, York county, O. (4955.)—Continued.
(5) Elbow for drain-tiles, made from clay No. 4955.—M. Wakefield, 1886. (4955e.)

Lot 22, range I. of Clinton, Lincoln county, O. (5192.)

- (1) Stock brick (red), machine-made, made from clay No. 5192. (5192a.)
- (2) Drain-tiles (red), made from clay No. 5192 .- Wm. Tallman & Son, Beamsville, O., 1885. (5192b.)

Tilsonburgh, Oxford county, O. (5150.)

- (1) Stock brick (white), machine-made, made from clay No. 5150.—Edwin D. Tillson, 1885. (5150a.)
- Lot 29, range II. of Bertie, Welland county, O. (5152.)
  - (1) Stock brick (white), machine-made, made from clay No. 5152.—A. Detterling, 1885. (5152a.)

Westminster, Middlesex county, O. (5170.)

(1) Stock brick (white), machine-made, made from clay No. 5170.—James Johnson, London, O., 1885. (5170a.)

London, Middlesex county, O.—S. Russell, 1875. (1141.)

- -employed for pottery.-C. Pratt, 1875. (1138.)
  - Lot 2, range VI. Ekfrid, Middlesex county, O. (5142.)
    - (1) Pressed brick (white), made from clay No. 5142.—F. W. Wade, Valley Brick Yard, 1885. (5142a.)
- Brantford, Brant county, O.—H. Workman, 1875. (1145.)

St. Thomas, Elgin county, O. (5148.)

- (1) Pressed brick (white), made from clay No. 5148.—M. C. Freek, 1885. (5148a.)
- Winnipeg, Manitoba, 9' below the surface. (860)
- 12'Winnipeg do do (861.)
  - 16 (862.)Winnipeg
- Presented by Daniel Smith, 1884.
- Stony Mountain, Manitoba.—Barelay and Morrison, 1875. (603.)
  - White Mud River, from base of Fox Hills, district of Assiniboia, N.W.T.—Coll., R. G. McConnell, 1883. (3654.)
- White Mud River, near the mouth of Farewell Creek, district of Assiniboia, N.W.T. (5243.)
- Arenaceous clay, occurring in connection with No. 5243.—Coll., R. G. McConnell, 1883. (5811.)
- Vicinity of Pasqua, township 15, range XXV. west of the 2nd initial meridian, district of Assiniboia, N.W.T.—Coll., R. G. McConnell, 1883. (5245.)
  - From above the boulder clay.—Eight miles above the Forks of the Red Deer River, district of Assiniboia, N.W.T.—Coll., R. G. McConnell, 1883. (4666.)
- Cypress Hills, district of Assiniboia, N.W.T.—Coll., R. G. McConnell, 1883. (4667.)
- From lignite deposit. South Saskatchewan River, south side, about six miles above Medicine Hat, district of Assiniboia, N.W.T.—Coll., T. C. Weston, 1884. (4958.)
- Crooked Creek, near Waterton Lake, district of Alberta, N.W.T. —Coll., T. C. Weston, 1883. (3531.)
- Intercalated in boulder clay.—Coal Banks, Belly River, district of Alberta, N.W.T.—Coll., T. C. Weston, 1883. (3533.)
- Three miles above Coal Banks, Belly River, district of Alberta, N. W. T.—Coll., T. C. Weston, 1883. (3534.)

## BRICK-CLAYS AND BRICKS, ETC .- Continued.

Brick-clay.—A two-inch parting in coal seam.—Galt mine, Coal Banks, Belly River, district of Alberta, N.W.T.—Coll., T. C. Weston, 1883. (3535.)

Unright wing-case 17.-Continued.

- Overlying boulder clay.—Near Fort Kipp, Old Man River, district of Alberta, N.W.T.—Coll., T. C. Weston, 1883. (3536.)
- Dutch Fred's crossing, Waterton River, district of Alberta, N.W.T.—Coll., T. C. Weston, 1883. (3537.)
- Pincher Creek, district of Alberta, N.W.T.-Coll., T. C. Weston. 1883. (3538, 3539, 3540,)
- Park Reserve, New Westminster, B.C.-Henderson and Monahan, 1885. (5191.)
- Vicinity of Nanaimo, Vancouver Island, B.C.—Pressed brick (red), made from. (5131.)
- Victoria, Vancouver Island, B.C. (5188.)
  - (1) Brick (red) made from clay No. 5188.-M. Humber. 1885. (5188a.)
- Guichon Creek, about three miles up from mouth, Nicola, B.C.—employed for pottery.—De Wolf and Monroe, Vancouver, B.C., 1891. (5194.)
- Treadwell, North Plantagenet, Prescott county, O.-Drain-tiles (red), made from. (613.)
- River St. Charles, vicinity of Quebec, Quebec county, Q. (1135.)
  - (1) Drain-tiles (red), made from clay No. 1135.—David Bell, Little River, Q (1135a.)
- Sand used in the manufacture of building brick.—Upper Woodstock, Carleton county, N.B. (555.)
  - used in the manufacture of building brick.-Montreal, Hochelaga county, Q. (1150.)
  - used for sanding brick moulds .- Port Nelson, Halton county, O. —F. Childs, Hamilton, O., 1885. (4959.)

## RAW LIME AND CEMENT STONES. AND COMMON AND HYDRAULIC LIMES.

#### Raw limestones and prepared limes.

Limestone.—Lot 18, range VII. of Dudswell, Wolfe county, Q.—Silurian, E 3. (5106.)

Upright wing-case 18.

(1) Lime prepared from limestone No. 5106.—Dudswell Marble and Lime Company, Marbleton, Q., 1885. (5106a.)

St. Armand, Missisquoi county, Q.—lime prepared from. (1195.)

- St. John's, St. John's county, Q.—lime prepared from.—D. Breault
- & Sons, 1885. (2584.)
- Montreal, Hochelaga county, Q.—Cambro-Silurian, D 2. (654.)
  - (1) Lime prepared from limestone No. 654.—C. A. Garvais, 1875. (654a.)
- Wright's quarry, Hull, Ottawa county, Q.—Cambro-Silurian, D 2. (5060.)
  - (1) Lime prepared from limestone No. 5060.—C. B. Wright, 1885. (5060a.)
- Pugwash, Cumberland county, N.S.—lime prepared from.—D. Douglas, 1875. (1186.)
- Lot 10, range IV. of Ramsay, Lanark county, O.—Laurentian, A. (5128.)

## RAW LIME AND CEMENT STONES, ETC.-Continued.

## Raw limestones and prepared limes-Continued.

Upright wing-case 18.—
Continued.

- Limestone.—Lot 10, range IV. of Ramsay, Lanark county, O. (5128.)—Con.

  (1) Lime prepared from limestone No. 5128.—A. Sutherland, 1885. (5128a.)
  - Ramsay, Lanark county, O.—Laurentian, A. (5185.)
    - (1) Lime prepared from limestone No. 5185.—J. Paul, 1885. (5185a.)
  - Lot 21, range X. of Lanark, Lanark county, O.—Laurentian, A. (5056.)
    - (1) Lime prepared from limestone No. 5056.—J. Hogg, Almonte, O., 1885. (5056a.)
  - Lot 7, range XIII. of McNab, Renfrew county, O.—Laurentian, A. (5054.)
    - (1) Lime prepared from limestone No. 5054.—W. Baker, Arnprior, O., 1885. (5054a.)
  - East half of lot 13, range III. of Horton, Renfrew county, O.—Laurentian, A. (5052.)
     (1) Lime prepared from limestone No. 5052.—J. A. Jamieson.
    - Renfrew, O., 1885. (5052a.)
  - Lot 21, range IV. of Ross, Renfrew county, O.—Laurentian, A. (823.)
     (1) Lime prepared from limestone No. 823.—P. Ferguson.
    - Haly's station, O., 1885. (823a.)

      Dundas, Wentworth county, O.—lime prepared from.—E. & C.
  - Dundas, Wentworth county, O.—lime prepared from.—E. & C Farquhar, 1875. (1189.)
  - St. Mary's, Perth county, O.—lime prepared from.—Whitson & Slater, 1875. (1193.)
  - (magnesian.)—Guelph, Wellington county, O.—Silurian, E 4. (660.)
    - (1) Lime prepared from limestone No. 660.—R. Elmsley, 1875. (660a.)
  - Lot 5, range V. of Eramosa, Wellington county, O.—lime prepared from.—George Dunbar, 1875. (1192.)
  - (magnesian.)--Walkerton, Bruce county, O.—lime prepared from. (773.)
  - Kincardine, Bruce county, O.—lime prepared from.—Levi Lewis, 1875. (1187.)
  - Galt, Waterloo county, O.—lime prepared from.—Mrs. Ballantyne, 1875. (1188.)
  - (magnesian.)—Limehouse, Halton county, O.—lime prepared from.—
    Thomas Gowdie, 1875. (1190.)
  - -- Cayuga, Haldimand county, O.--lime prepared from.—Dr. B. Baxter, 1875. (1191.)
  - Lot 1, range I. of Colborne, Huron county, O.--Devonian, F. (5140.)
    - (1) Lime prepared from limestone No. 5140.—Thomas Good, Benmiller Lime Works, 1885. (5140a.)

## Raw cement stones and prepared cements.

Cement-stone, raw.—Head of Iroquois Portage, Grand Coupe, Gaspé county, Q.—Cambro-Silurian, D 3. (662.)

 St. John's ward, Quebec, Quebec county, Q.—cement prepared from.—Gauvreau & Co., 1875. (1213.)

## RAW LIME AND CEMENT STONES, ETC.—Continued,

Raw cement stones and prepared cements—Continued.

Cement-stone, raw—Lot 22, range III. of Grantham, Drummond county, Q.

(1215.)
(1) Cement prepared from raw cement-stone No. 1215. (1215a.)

Upright wing-case 18.— Continued.

- Arthabaska, Arthabaska county, Q.—cement prepared from.—Sheriff Quesnel, 1875. (2585.)
- Nepean, Carleton county, O.—Cambro-Silurian, D 1. (670.)
  - (1) Cement prepared from raw cement-stone No. 670.—C. B. Wright, Hull, Q., 1885. (670a.)
- Gale's farm, Hochelaga, Hochelaga county, Q.—Cambro-Silurian, D. (1216.)
- Lot 6, range XI. of Pakenham, Lanark county, O.--Cambro-Silurian, D 1. (671.)
- Two miles below Kingston, Frontenac county, O.—Cambro-Silurian, D 1. (668.)
- Limehouse, Halton county, O.—Silurian, E 2. (658.)
  - (1) Cement prepared from raw cement-stone No. 658.—Thomas Gowdie, 1875. (658a.)
- Goderich (Maitland River bridge), Huron county, O.—Devonian, F 1. (669.)
- Thorold, Welland county, O.—Silurian, E 3, (1218.)

## GYPSUM, ANHYDRITE AND PLASTER-OF-PARIS.

#### Gypsum.

Gypsum.—Bras d'Or Lake, four miles east of Baddeck, Victoria county, N.S.—Coll., H. Fletcher, 1875.—Carboniferous, G 1. (627.)

"East" quarry, Grandique, Richmond county, N.S.—Coll., H. How, 1871.—Carboniferous, G 1. (628.)

"West" quarry, Grandique, Richmond county, N.S.—Coll., H. How, 1871.—Carboniferous, G 1. (634.)

-- "Centre" quarry, Grandique, Richmond county, N.S.—Coll., H. How, 1871.—Carboniferous, G 1. (656.)

North Shore, St. Ann's Bay, Cape Breton county, N.S.—Coll., H. Fletcher, 1875.—Carboniferous, G 1. (1201.)

- "Clifton" quarry, near Windsor, Hants county, N.S.—Coll., H. How, 1871.—Carboniferous, G 1. (618.)

Two miles east of Windsor, Hants county, N.S.—Coll., H. How, 1871.—Carboniferous, G 1. (624.)

- Sweet's quarry, about five miles east of Windsor, Hants county, N. S.—Coll., H. How, 1871.—Carboniferous, G 1. (626.)

Latchey's quarry, near Windsor, Hants county, N.S.—Coll., H.
 How, 1871.—Carboniferous, G 1. (632.)

 var. selenite.—Windsor, Hants county, N.S.—Coll., H. How, 1871.—Carboniferous, G 1. (633.)

 (fibrous).—Windsor, Hants county, N.S.—Coll., H. How, 1871.— Carboniferous, G 1. (642.)

 Wilkins' quarry, near Windsor, Hants county, N.S.—Coll., H. How, 1871.—Carboniferous, G 1. (651.)

- Windsor, Hants county, N.S.—(calcined = Plaster-of-Paris). (694.)

— Hanson's quarry, Falmouth, Hants county, N.S.—Coll., H. How, 1871.—Carboniferous, G 1. (620.)

Upright wing-case

# GYPSUM, ANHYDRITE AND PLASTER-OF-PARIS-Continued.

Gypsum--Continued.

Upright wing-case 19.—
Continued.

Gypsum—Payzant's quarry, Falmouth, Hants county, N.S.—Coll., H. How, 1871.—Carboniferous, G 1. (621.)

- Young's quarry, Falmouth, Hants county, N.S.—Coll., H. How, 1871.—Carboniferous, G 1. (625.)
- Three-mile Plains, Hants county, N.S.—Coll., H. How, 1871.—Carboniferous, G 1. (629.)
- var. selenite.—Wentworth, Hants county, N.S.—Coll., H. How, 1871.—Carboniferous, G 1. (640.)
- Wentworth, Hants county, N.S.—Coll., H. Y. Hind, 1875.—Carboniferous, G 1. (707.)
  - "Blue" quarries, Wentworth, Hants county, N.S.—Coll., H. Y. Hind, 1875.—Carboniferous, G 1. (737.)
- Chambers' quarry, about one mile south-west of Brooklyn, Hants county, N.S.—Coll., H. How, 1871.—Carboniferous G 1. (623.)
  - Grant's quarry, Loyal Hill, Summerville, Hants county, N.S.—Coll.,
     H. How, 1871.—Carboniferous, G 1. (645.)
  - Burgess' quarry, about a mile and a half east of Newport station, Hants county, N.S.—Coll., H. How, 1871.—Carboniferous, G 1. (646.)
    - (fibrous).—Maitland, Hants county, N.S.—Coll., H. How, 1871.—Carboniferous, & 1. (650.)
- Walton, Hants county, N.S.—Coll., H. How, 1871.—Carboniferous, G 1. (775.)
- Beaver Brook, Colchester county, N.S.—(calcined=Plaster-of-Paris). (709.)
  - var. selenite.—Cape Blomidon, King's county, N.S,—Coll., C. W. Willimott, 1883.—Triassic, H. (639.)
- (fibrous).—Blomidon, King's county, N.S.—Coll., R. W. Ells, 1876. —Triassic, H. (772.)
- Oxford, River Philip, Cumberland county, N.S.—Presented by A.
   J. Hill, 1875.—Carboniferous, G 1. (776.)
  - Black River, a mile and a half east of Salt Springs station, Intercolonial Railway, Cumberland county, N.S.—Coll., S. Barlow, 1875.—Carboniferous, G 1. (777.)
- Claremont Hill, a mile and a half south of Salt Springs station, Intercolonial Railway, Cumberland county, N.S.—Coll., S. Barlow, 1875.—Carboniferous, G 1. (706.)
  - Fulton's quarry, Plaster Cove, Wallace Harbour, Cumberland county, N.S.—Coll., W. McOuat, 1875.—Carboniferous, G 1. (779.)
- Plaster Cliff, Tobique River, Victoria county, N.B.—Coll., C. Robb, 1870.—Carboniferous, G 1. (641.)
  - (fibrous).—Plaster Cliff, Tobique River, Victoria county, N.B.—Coll., C. Robb, 1870.—Carboniferous, G 1. (643.)
- Petitcodiac, Westmoreland county, N.B.—Coll., L. W. Bailey, 1875.—Carboniferous, G 1. (659.)
- Hillsborough, Albert county, N.B.—Coll., L. W. Bailey, 1875.— Carboniferous, G 1. (1199.)
- Amherst Island, Magdalen Islands, Q.—Coll., J. Richardson, 1880. Carboniferous, G 1. (745.)
  - (fibrous).—Grindstone Island, Magdalen Islands, Q.—Coll., J. Richardson, 1880.—Carboniferous, G 1. (760.)
    - Alright Island, Magdalen Islands, Q.—Coll., J. Richardson, 1880.—Carboniferous, G 1. (761.)

# GYPSUM, ANHYDRITE AND PLASTER-OF-PARIS-Continued.

#### Gypsum-Continued.

Gypsum-Oneida, Haldimand county, O.-Coll., T. C. Weston, 1875.-Silurian, E 5. (649.)

Grand River, below Cayuga, Haldimand county, O.—Presented by W. H. Merritt, 1883.—Silurian, E 5. (653.)

Mount Healy, Haldimand county, O.-Silurian, E 5.

- (1) Gypsum, calcined = Plaster-of-Paris, prepared from gypsum, No. 720.—The Ontario Plaster Company, Mount Healy, O. (720a.)
- with associated dolomite.—Mount Healy, Haldimand county, O.—Coll., T. C. Weston, 1875.—Silurian, E 5. (728.)
- (fibrous).—Paris, Brant county, O.—Silurian, E 5. (652.)
  - (1) Gypsum, calcined=Plaster-of-Paris, prepared from gypsum No. 652.—William Coleman, Paris, O. (652a.)
- Moose River, thirty-eight miles above Moose Factory, district of Algoma, O.—Coll., R. Bell, 1875.—Devonian, F.
- Lake St. Martin, about ten miles west of the outlet of Little Saskatchewan River, Manitoba.—Presented by Thomas Guerin, 1882. (647.)
- Peace Point, Peace River, N.W.T.—Presented by J. H. Moberley. -Devonian, F. (5325.)
- Salmon River, between the South Thompson and head of Okanagan Lake, B.C. (698.)
- Vicinity of Spence's Bridge, Thompson River, B.C. (4771.)

#### Anhydrite.

Anhydrite.—Clifton quarry, near Windsor, Hants county, N.S.—Coll., H. How, 1871.—Carboniferous, G 1. (617.)

Quarry two miles from Windsor, Hants county, N.S.—Coll., H. How, 1871.—Carboniferous, G 1. (648.)

Hillsborough, Albert county, N.B.—Coll., L. W. Bailey, 1875.— Carboniferous, G I. (1200.)

# V.-MINERALS EMPLOYED AS PIGMENTS.

#### Iron ochres and other ferruginous minerals, and pigments prepared therefrom.

Iron ochre.—Dark brownish-yellow—Pudsey's Point, Apple River, Cumberland county, N.S.—Post-Tertiary, M 3. (2440.)

Purplish-brown.—North-west branch of the Miramichi River, about fourteen miles from Redbank, Northumberland county, N.B. Presented by J. Ferguson, 1890. (4691.)

Brownish-yellow.—Carleton, Bonaventure county, Q.—Post-Tertiary, M 3. (726.) Brownish-yellow.—Côte St. Charles, Vaudreuil, Vaudreuil county,

Q.—Post-Tertiary, M 3. (724.)

Yellowish-brown.—Cap de la Magdeleine, Champlain county, Q.— Post-Tertiary, M 3. (729.)

Brownish-red.—Cap de la Magdeleine, Champlain county, Q.—Post-Tertiary, M 3. (730.)

Upright wing-case 19. Continued.

Upright

wing-case

*2*0.

# Iron ochres and other ferruginous minerals, etc.—Continued.

Upright wing-case 20.—Continued.

Iron ochre—Brownish-yellow.—Cap de la Magdeleine, Champlain county, Q.—
Post-Tertiary, M 3. (739.)

Reddish-brown.—Lot 13, range IX. of Stanstead, Stanstead county.

Q.—Post-Tertiary, M 3. (731.)

Brownish-yellow.—Ste. Elizabeth, Joliette county, Q.—Post-Tertiary, M 3. (732.)

Brownish-yellow.—Ste. Rose(Rosalie), seigniory of Lanoraie, Joliette

county, Q.—Post-Tertiary, M 3. (734.)

Brown, vandyke.—Ste. Anne de Montmorenci, Montmorency, county, Q.—Post-Tertiary, M 3. (735.)

- Reddish-brown.—Ste. Anne de Montmorenei, Montmoreney county,

Q.—Post-Tertiary, M 3. (736.)
Reddish-brownish-yellow.—Ste. Anne de Montmorenci, Montmorency county, Q.—Post-Tertiary, M 3. (740.)

Dark brownish-yellow.—Ste. Anne de Montmorenci, Montmorency county, Q.—Post-Tertiary, M 3. (741.)

Brownish-yellow.—Ste. Anne de Montmorenci, Montmorency county. Q.—Post-Tertiary, M 3. (742.)

Brownish-yellow.—Ste. Marguerite, St. Maurice county, Q.—Post-Tertiary, M 3. (738.)

Purplish-reddish-brown.—Pointe du Lac, St. Maurice county, Q.— Post-Tertiary, M 3. (743.)

 Yellowish brown.—Pointe du Lac, St. Maurice county, Q.—Post-Tertiary, M 3. (2445.)

Dark yellowish-brown.—Pointe du Lac, St. Maurice county, Q.—
Post Tertiary, M 3. (2446.)

Purplish-brown.—Lot 15, range X. of Hull, Ottawa county, Q.—Coll., C. W. Willimott, 1885.—Post-Tertiary, M 3. (5183.)

Brownish-yellow.—Lot 30, range II. of Leslie, Pontiac county, Q.—Presented by R. H. G. Chapman, 1885. (5123.)

Brownish-yellow.—Lot 2, range XI. of Nottawasaga, Simcoe county, O.—Post-Tertiary, M 3. (733.)

Brownish-yellow.—Conestogo, Waterloo county, O.—Post-Tertiary, M 3. (2460.)

Pigments prepared from iron ochre No. 2460 by James Newton, Limehouse, Halton county, O.—

(1) Brownish-yellow. (2460a.)

(1) Brownish-yellow. (2400a.

(2) Clove-brown. (2460b.)

(3) Burnt umber. (2460c.)

Brownish-yellow.—Lot 12, range XIV. of Walsingham, Norfolk county, O.—Post-Tertiary, M 3. (2467.)

Pigments prepared from iron ochre No. 2467 by the Buchanan Mineral Company, Hamilton, O.—

(1) Brownish-yellow, designated "metallic." (2467a.)

(2) do (2467b.)

(3) Brownish-red, designated "metallic." (2467c.)

(4) Deep brownish-red do (2467d.)

(5) do do (2467e.)

(6) Brownish-grey. (2467f.)

(7) Brownish-yellow. (2467g.)

(8) Reddish-brown. (2467h.)

Brownish-yellow.—Silver Creek, Harrison Lake, about twenty miles north of Harrison Hot Springs, B.C.—Presented by John P. Brown, 1890. (708.)

#### Iron ochres and other ferruginous minerals, etc.—Continued.

Iron ochre—Brownish-red.—Silver Creek, Harrison Lake, about twenty miles north of Harrison Hot Springs, B.C.—Presented by John P. Brown, 1890. (710.)

Upright wing-case

 Deep brownish-red.—Silver Creek, Harrison Lake, about twenty miles north of Harrison Hot Springs, B.C.—Presented by John P. Brown, 1890. (795.)

Bog iron ore.—Mallorytown, Leeds county, O. (2466.)

(1) Pigment (yellowish-brown), prepared from bog iron ore No. 2466 by the Leeds Paint Manufacturing Company, Mallorytown, O. (2466a.)

— Mallorytown, Leeds county, O.—Post Tertiary, M 3. (2463.)

Pigments prepared from bog iron ore No. 2463 by the Leeds Paint Manufacturing Company, Mallorytown, O.—

(1) Brownish-yellow. (2463a.)

(2) Purplish-reddish-brown, (2463b.)

Ferruginous rock.—Mallorytown, Leeds county, O. (2464.)

(1) Pigment (brownish-red), prepared from ferruginous rock No. 2464 by the Leeds Paint Manufacturing Company, Mallorytown, O. (2464a.)

- Mallorytown, Leeds county, O. (2465.)

(1) Pigment (brownish-red, a different shade from 2464a), prepared from ferruginous rock No. 2465 by the Leeds Paint Manufacturing Company, Mallorytown, O. (2465a.)

- Sackville, Westmoreland county, N.B. (2452.)

(1) Pigment (brownish-red), prepared from ferruginous rock No. 2452 by George Barnes. (2452a.)

Clay.—Limehouse, Halton county, O. (2455.)

(1) Pigment (bluish-grey) prepared from clay No. 2455 by James Newton, Limehouse, O. (2455a.)

— Limehouse, Halton county, O. (2456.)

(1) Pigment (brownish-grey) prepared from clay No. 2456 by James Newton, Limehouse, O. (2456a.)

Hematite.—Limehouse, Halton county, O.—Silurian, E 2. (2457.)

(1) Pigment (purplish-brown), prepared from hematite No. 2457 by James Newton, Limehouse, O. (2457a.)

Ferruginous dolomite.—Limehouse, Halton county, O.—Silurian, E 2. (2458.)

(1) Pigment (reddish-brown), prepared from ferruginous dolomite No. 2458 by James Newton, Limehouse, O. (2458a.)

Ferruginous clay.—Limehouse, Halton county, O. (2459.)

(1) Pigment (reddish-brown), prepared from ferruginous clay No. 2459 by James Newton, Limehouse, O. (2459a.)

- Yellow.—Punk Island, Lake Winnipeg, Manitoba. (2475.)

#### Barite or Barytes.

Barytes (barite).—Judique, Inverness county, N.S.—Presented by H. S. Poole, 1875.—Carboniferous, G 1. (2479.)

— Bass River, Five Islands, Colchester county, N.S.—Coll., S. Barlow, 1875.—Carboniferous, G 1. (2468.)

— Memramcook, Westmoreland county, N.B.—Carboniferous, G 1. (2453.)

— Anse à la Vieille, Port Daniel, Bonaventure county, Q.—Coll., T C. Weston, 1875.—Silurian, E 3. (749.)

#### Barite or Barytes-Continued.

Upright wing-case 20.—

Barytes (barite)—West half of lot 7, range X. of Hull, Ottawa county, Q.—Coll., J. Richardson.—Laurentian, A. (2476.)

(1) Ground barytes (No. 2476) employed, in admixture, as a pigment. (2476a.)

- Lot 4, range IX. of North Burgess, Lanark county, O.—Laurentian, A. (750.)
  - (1) Ground barytes (No. 750) employed, in admixture, as a pigment. (750a.)
  - Lot 22, range I. of Lavant, Lanark county, O.—Laurentian, A. (994.)
- Lynch's farm, range IV. of Ramsay, Lanark county, O.—Presented by W. H. Wylie, 1885.—Laurentian, A. (2449.)
- Lot 3, range XI. of Pakenham, Lanark county, O.—Presented by W. H. Wylie, 1885.—Laurentian, A. (746.)
- Lot 15, range VI. of Madoc, Hastings county, O.—Laurentian, A. (751.)
- Galway, Peterborough county, O.-Laurentian, A. (748.
- From the second cutting west of McKay's Harbour (Rossport) station, C.P.R., district of Thunder Bay, O. Coll., A. R. C. Selwyn, 1885.—Cambrian, C. (5387.)

#### Steatite.

Steatite (var. of tale).—Potton, Brome county, Q.—Cambrian, C. (747.)

The following have, temporarily, also been accommodated in this case :—

- Celestite.—Lot 1, range VIII. of Lansdowne, Leeds county, O.—Laurentian, A. (752.)
  - Lot 7, range X. of Bagot, Renfrew county, O.—Presented by Hiram Robinson, Ottawa, O., 1885. (5121.)
  - Sydney River (about a mile and a half above Sydney Bridge), Cape
    Breton county, N.S.—Presented by E. T. Mozeley, 1883.
    (928.)
- Magnesite.—Lot 12, range VII. of Sutton, Brome county, Q.—Pre-Cambrian, B? (701.)
  - Lot 17, range IX. of Bolton, Brome county, Q.—Pre-Cambrian, B? (702.)
    - (1) Magnesite, calcined, prepared from magnesite No. 702. (702a.)
    - (2) Magnesium sulphate (Epsom salts) do (702b.)
    - (3) Magnesium carbonate (magnesia alba) do (702c.)

# VI.—REFRACTORY (FIRE-RESISTING) MINERALS.

#### GRAPHITE.

#### Graphite, and articles manufactured therefrom.

Upright wing-case 21.

Graphite, (disseminated.)—Best's mine, St. John, St. John county, N. B.—Coll., H. P. Brumell, 1891.—Laurentian, A. (896.)

 (vein.)—North half of lot 3, range II. of the Augmentation of Grenville, Argenteuil county, Q.—Laurentian, A. (789.)

Upright

wing-case

21 -

Continued.

#### GBAPHITE-Continued.

# Graphite, and articles manufactured therefrom-Continued.

Graphite, (vein.)-Lot 3, range VI. of the Augmentation of Grenville, Argenteuil county, Q.—Laurentian, A. (799.) (vein.)—Lot 1, range VI. of the Augmentation of Grenville, Argenteuil county, Q.—Laurentian, A. (801.) (vein.)-Miller's mine, lot 10, range V. of Grenville, Argenteuil county, Q.—Coll., R. Bell, 1875.—Laurentian, A. (790.) (vein.)—Lot 2, range X. of Grenville, Argenteuil county, Q.—Laurentian, A. (802.) (disseminated.)—Lochaber, Ottawa county, Q.—Laurentian, A. (793.) (1) Dressed graphite, prepared from graphite No. 793. (793a.) (disseminated.)-Lots 15 and 16, range VI. of Buckingham, Ottawa county, Q.-Laurentian, A. (3689.) (vein.)—Lot 23, range VI. of Buckingham, Ottawa county, Q.— Laurentian, A. (2553.) (vein.)—Lot 27, range VI. of Buckingham, Ottawa county, Q.—Laurentian, A. (2486.) (vein.)—Buckingham, Ottawa county, Q.—Laurentian, A. (791.) (disseminated.)—Lot 28, range VI. of Buckingham, Ottawa county, Q.—Presented by W. H. Dickson, Ottawa, O., 1889.—Laurentian, A. (796.) (vein.)—Lot 21, range VII. of Buckingham, Ottawa county, Q.—Laurentian, A. (2551.) (1) Plumbago crucible, manufactured from graphite No. 2551. (2551a.) (2) Black-lead pencils, manufactured from graphite No. 2551. (2551b.) (3) Stove polish—pressed squares, manufactured from graphite No. 2551. (2551c.) (4) Stove polish, dome-lead, manufactured from graphite No. 2551. (2551d.) (disseminated.)—Lot 27, range VII. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor.—Laurentian, A. (4624.) (disseminated.)—Lot 20, range VIII. of Buckingham, Ottawa county, Q.—Laurentian, A. (2483.) (1) Dressed graphite, prepared from graphite No. 2483. (2483a.) do (2483b.) do (vein.)-Lot 10, range I. of South Burgess, Leeds county, O.-Laurentian, A. (798.) (1) Dressed graphite, prepared from graphite No. 798. (798a.) (vein.)—Darling, Lanark county, O.—Laurentian, A. (803.) (disseminated.)—Lot 21, range VI. of North Elmsley, Lanark county, O.—Laurentian, A. (5469.) (1) Dressed graphite, prepared from graphite No. 5469. (5469a.) (disseminated.)—Lot 34, range VIII. of Denbigh, Addington county, O.—Laurentian, A. (2462.) (disseminated.)—Alkow Harbour, Dean Canal, B.C.—Presented by the Marquis of Lorne, 1883. (622.)

Friction bearing, made of Fibre-graphite (wood pulp and graphite).—Presented by J. Fraser Torrance, M.E., 1892. (2568.)

# SPECIMENS ILLUSTRATING THE DISTRIBUTION OF GRAPHITE.

Graphite. (disseminated.)—Best's mine, St. John, St. John county, N.B.—Coll., Upright H. P. Brumell, 1891.—Laurentian, A. (2094.) table-case 29.-(disseminated.)-Split-Rock pumbago mine, St. John county, N.B. Continued. -Coll., W. Broad, 1878.—Laurentian, A. (3681.) (disseminated.)-From an opening three-quarters of a mile north of the Split-Rock plumbago mine, St. John county, N.B.-Coll., W. Broad, 1878,—Laurentian, A. (3682.) (disseminated.)—Lot 9, range V. of Grenville, Argenteuil county, Q. —Presented by F. C. Weldon, 1886.—Laurentian, A. (5286.) (vein.)—Lot 27, range V. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1876.—Laurentian, A. (1935.) (yein.)—Lot 28, range V. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1876.—Laurentian, A. (2108.) (vein.)—Lot 27, range VI. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1876.—Laurentian, A. (3688.) with pyrite.—Lot 28, range VI. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1876.—Laurentian, A. (1777.) (vein.)-Lot 21, range VII. of Buckingham, Ottawa county, Q .-Coll., H. G. Vennor, 1876.—Laurentian, A. (3684.) (disseminated.)—Lot —, range IX. of Wakefield, Ottawa county, Q. —Presented by E. Trowse, 1886.—Laurentian, A. (5331.) (disseminated.)—Lot 21, range VI. of North Elmsley, Lanark county, O.—Laurentian, A. (2113.) (disseminated.)—Lot 34, range VIII. of Denbigh, Addington county, 0.—Laurentian, A. (2141.) (disseminated.)-Skuzzy Creek, near North Bend, west side of the Fraser River, B.C.—Presented by J. W. Mackay, 1890. (5998.)Table-case (vein.)-North half of lot 3, range II. of the Augmentation of Grenville, Argenteuil county, Q.—Coll., C. Robb, 1875.—Laurentian, A. (1778.) (vein.)—Lot 1, range VI. of the Augmentation of Grenville, Argenteuil county, Q.—Laurentian, A. (1779.) (vein.)-Lot 4, range VI. of Grenville, Argenteuil county, Q.-Laurentian, A. (1781.) (vein.)-Miller's mine, lot 10, range V. of Grenville, Argenteuil county, Q.-Laurentian, A. (1782.) (disseminated.)—Lot 9, range IV. of Grenville, Argenteuil county, Q. —Laurentian, A. (1913.) Beresford, Terrebonne county, Q.—Laurentian, A. (3518.) (disseminated.)—Lot 20, range VIII. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1876.—Laurentian, A. (disseminated.)-Lots 15 and 16, range VI. of Buckingham, Ottawa county, Q.-Coll., H. G. Vennor, 1876.-Laurentian, A. (1768.)(disseminated.)-Lot 20, range VIII. of Buckingham, Ottawa

> -- (vein.)—Lot 5, range IX. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1873.—Laurentian, A. (1772.)

(1770.)

(disseminated.)—Lot 27, range VII. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1876.—Laurentian, A. (1776.)

county, Q.-Coll., H. G. Vennor, 1876.-Laurentian, A.

(vein.)—Lot 23, range VI. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1876.—Laurentian, A. (1783.)

### SPECIMENS ILLUSTRATING THE DISTRIBUTION OF GRAPHITE-Continued.

Graphite, (disseminated.)—Lot 27, range VII. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1876.—Laurentian A. (1784.)

(disseminated.)—Lot 28, range VI. of Buckingham, Ottawa county, Q.—Presented by W. H. Dickson, Ottawa, 1889.—Lauren-

tian, A. (3687.) Lochaber, Ottawa county, Q.—Laurentian, A. (1774.)

- Darling, Lanark county, O .do (1775.)Moore's clearing, lot 21, North Front A, Westmeath, Renfrew county, O.—Coll., W. E. Logan, 1845.—Laurentian, A. (3607.)
- (vein.)—Lot 10, range I. of South Burgess, Leeds county. O.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3686.)
- (disseminated.)—Lot 6, range IX. of Loughborough, Frontenac county, O.—Coll., H. G. Vennor.—Laurentian, A. (1771.)
- (disseminated.)—Fraser River, B.C.—Presented by A. Cowan, 1884. (4941.)
- (disseminated.) -Alkow Harbour, Dean Canal, B.C.-Presented by the Marquis of Lorne, 1884. (3690.)

# MINERAL ASSOCIATIONS OF GRAPHITE.

- Graphite, calcite, titanite and zircon. Miller's mine, lot 10, range V. of Grenville, Argenteuil county, Q.—Laurentian, A. (1250.)
  - wollastonite, pyroxene and titanite. Miller's mine, lot 10, range V. of Grenville, Argenteuil county, Q.—Coll., C. W. Willimott, 1878.—Laurentian, A. (1740.)
- calcite, pyroxene and titanite. Miller's mine, lot 10, range V. of Grenville, Argenteuil county, Q.—Coll., C. W. Willimott, 1878.—Laurentian, A. (1741, 1742.)

  Limestone with graphite and pyroxene.—South half of lot 17, range II. of Gren-
- ville, Argenteuil county, Q.—Laurentian, A. (1762.)
- Graphite, calcite, pyroxene and apatite.—North half of lot 21, range VII. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor; 1876. -Laurentian, A. (1743.)
- Pyroxene with graphite.—North half of lot 21, range VII. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1876.—Laurentian, A. (1744.)
- Graphite, orthoclase and titanite. Buckingham, Ottawa county, Q.-Coll., H. G. Vennor, 1876.—Laurentian, A. (1746.)
  - orthoclase and hornblende.—North half of lot 21, range VII, of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1876. —Laurentian, A. (1748.)
    - calcite and mica. Lot 21, range VII. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1876.—Laurentian, A. (1749.)
  - and orthoclase. Lot 27, range V. of Buckingham, Ottawa county. Q.—Coll., H. G. Vennor, 1876.—Laurentian, A. (1752.)
- Pyroxene, graphite and mica.—Lot 24, range V. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1876.—Laurentian, A. (1753.)
- Graphite and orthoclase.—Lot 25, range IV. of Buckingham, Ottawa county, Q. -Coll., H. G. Vennor, 1876.—Laurentian, A. (1754.)
- Limestone with pyroxene.—Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1876.—Laurentian, A. (1755.)
- Orthoclase.—Lot 22, range VII. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1876.—Laurentian, A. (1757.)

Table-case 37.-Continued.

Table-case 37.
Continued.

Pyroxene.—Lot 17, range XII. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1876.—Laurentian, A. (1759.)

- Limestone with mica.—Lot 21, range VII. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1876.—Laurentian, A. (1760.)
- Orthoclase and hornblende.—Lot 21, range VII. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1876.—Laurentian, A. (1229.)
  - quartz and hornblende.—Lot 22, range VII. of Buckingham, Ottawa county, Q.—Coll., H. G. Vennor, 1876.—Laurentian, A. (1766.)
- Gneiss.—Little Rapids, Portland, Ottawa county, Q.—Coll., H. G. Vennor, 1876.
  —Laurentian, A. (1764.)
- Magnetite, graphite and calcite.—Baldwin mine, lot 13, range VI. of Hull, Ottawa county, Q.—Coll., T. C. Weston, 1875.—Laurentian, A. (1751.)
- Hematite and graphite.—Baldwin mine, lot 13, range VI. of Hull, Ottawa county, Q.—Coll., T. C. Weston, 1875.—Laurentian, A. (1756.)
- Magnetite and graphite.—Baldwin mine, lot 13, range VI. of Hull, Ottawa county, Q.—Coll., T. C. Weston, 1875.—Laurentian, A. (1765.)

Tremolite with graphite.—Tudor, Hastings county, O. (1745.)

Limestone with chondrodite and graphite.—South Crosby, Leeds county, O.—Coll., H. G. Vennor.—Laurentian, A. (1747.)

#### ASBESTUS, SOAPSTONE, POTSTONE, ETC.

#### Chrysotile, so-called (commercially) asbestus.

Upright wing-case

- Asbestus (fibrous serpentine, chrysotile).—Big Island, Lake Nicolet, South Ham, Wolfe county, Q.—Coll., C. W. Willimott, 1882.—Cambrian, C 1. (3672.)
  - South half of lots 27 and 28, range B. of Coleraine, Megantic county, Q.—Cambrian, C 1. (804.)
    - (1) Asbestus mill-board, steam packing, etc., manufactured from asbestus No. 804.—Presented by Ed. Wertheim, 1889. (804a.)
  - Scottish Canadian Company's mine, Black Lake, Coleraine, Megantic county, Q.—Coll., E. Coste, 1884.—Cambrian, C1. (4969.)
  - Boston Asbertus Packing Company's mine, lot 27, range V. of Thetford, Megantic county, Q.—Coll., C. W. Willimott, 1882.—Cambrian, C 1. (5341.)
  - Johnson's mine, lot 27, range VI. of Thetford, Megantic county, Q.
     —Coll., C. W. Willimott, 1882.—Cambrian, C 1. (5342.)
    - (1) Asbestus, dressed. (5342a.)
  - Melbourne quarry, lot 22, range VI. of Melbourne, Richmond county, Q.—Coll., H. Y. L. Brown, 1875.—Cambrian, C 1. (2485)
  - Lot 11, range VIII. of Templeton, Ottawa county, Q.—Coll., Scott Barlow, 1890.—Laurentian, A. (5395.)
  - Lot 32, range XI. of Sebastopol, Renfrew county, O.—Presented by A. Parks, 1878.—Laurentian, A. (5556.)
  - Lot 7, range XI. of Elzevir, Hastings county, O.—Presented by Joseph James, 1890.—Archean, A. B. (5936.)
    - (1) Ground asbestus, used in the manufacture of roofing cement. (5936a.)

# ASBESTUS, SOAPSTONE, POTSTONE, ETC.—Continued.

Specimens illustrating the distribution of chrysotile are shown in table-case 38, and articles manufactured therefrom in upright table-case 30.

# Soapstone or Steatite, compact tale.

Soapstone (steatite, compact tale).—Lot 7, range IV. of Elzevir, Hastings county, O.—Used in the manufacture of roofing cement. (5937.)

Upright wing-case 22.—
Continued.

- (1) Roofing cement, manufactured from ground asbestus (5936a) and soapstone (5937) by Joseph James, Bridgewater, O. (5937a.)
- Copper mine, Eagle Head, Gabarus Bay, Cape Breton county, N.S.
   Coll., H. Fletcher, 1875. (4627.)
- Lot 16, range V. of Potton, Brome county, Q.—Cambrian, C 1. (800.)
- Lot 24, range VI. of Potton, Brome county, Q.—Cambrian, C 1. (812.)
- Lot 12, range VII. of Sutton, Brome county, Q.—Pre-Cambrian, B? (813.)
- Lot 24, range IV. of Bolton, Brome county, Q.—Pre-Cambrian, B? (2566.)
- Lot 6, range I. of Garthby, Wolfe county, Q.—Coll., C. W. Willimott, 1889.—Cambrian, C 1. (3599.)

Bucket made of soapstone. (817.)

## Potstone or compact chlorite.

Potstone (compact chlorite).—Lot 4, range — of Broughton, Beauce county, Q. —Pre-Cambrian, B? (811.)

— Lot 26, range II. of Bolton, Brome county, Q.—Pre-Cambrian, B? (815.)

Dish made of potstone. (816.)

# Fire clay and other refractory minerals.

Altered felsite, suitable for the manufacture of fire-brick.—Watson Brook, Coxheath Hills, Cape Breton county, N.S.—Coll., H. Fletcher, 1875.—Laurentian, A. (2561.)

Fire-clay.—Grand Lake (Little River), Queen's county, N.B.—Presented by G. N. McMann, 1875.—Carboniferous, G. (1132.)

Dundas, Wentworth county, O.—Coll., R. Bell, 1862.—Silurian, E.2. (819.)

— Souris City, Souris River, Manitoba.—Coll., A. R. C. Selwyn, 1880. (4854.)

Quartz tailings.—Bruce Mines, Lake Huron, O.—Coll., T. C. Weston, 1882.—Huronian, B. (2562.)

(1) Clay used in the manufacture of fire-brick. (2562a.)

(2) Fire-brick made from quartz tailings (2562) in admixture with clay (2562a). (2562b.)

Refractory sandstone.—Lot 20, range I. of Pittsburgh, Frontenac county, O.
—Presented by A. Cowan, Kingston, O., 1862.—Cambrian, C 1. (818.)

Kaolin.—Wentworth, Hants county, N.S.—Presented by S. H. Sweet, 1875.—Carboniferous, G 1. (1147.)

The following has temporarily been accommodated in this case:

Orthoclase (microcline?).—Villeneuve mica mine, lot 31, range I. of Villeneuve, Ottawa county, Q.—Presented by L. H. Shirley, 1886.— Laurentian A. (5276.)

# SPECIMENS ILLUSTRATING THE DISTRIBUTION OF CHRYSOTILE OR SO-CALLED (COM-AND CLAIT TO A CDECTIC

		MERCIALLY) ASBESTUS.
Table-case 38.	Asbestus	fibrous serpentine, chrysotile).—Pisarinco Cove, Lancaster, St. John county, N.B. Coll., L. W. Bailey, 1870.—Pre-Cambrian, A.B. (1568.)
	-	Big Island, Lake Nicolet, South Ham, Wolfe county, Q.—Coll., C. W. Willimott, 1882.—Cambrian, C. (3629-3633.)
	percent	Melbourne quarry, lot 22, range VI. of Melbourne, Richmond county, Q.—Coll., H. Y. L. Brown, 1875.—Cambrian, C 1. (3643.)
		Shipton, Richmond county, Q.—Coll., J. Richardson, 1847.—Cambrian, C. (3644.)
	-	Johnson's mine, lot 27, range VI. of Thetford, Megantic county, Q.—Coll., C. W. Willimott, 1882.—Cambrian, C. (3634.)
		dressed.—Johnson's mine, lot 27, range VI. of Thetford, Megantic county, Q.—Coll., C. W. Willimott, 1882.—Cambrian, C. (3635.)
		with magnetite.—Johnson's mine, lot 27, range VI. of Thetford, Megantic county, Q.—Coll., C. W. Willimott, 1882.—Cambrian, C. (3598.)
		Boston Asbestus Packing Company's mine, lot 27, range V. of Thetford, Megantic county, Q.—Coll., C. W. Willimott, 1882.—Cambrian, C. (3636,)
		with magnetite.—Boston Asbestus Packing Company's mine, lot 27, range V. of Thetford, Megantic county, Q.—Coll., C. W. Willimott, 1882.—Cambrian, C. (3637.)
	_	Kings' mine, lot 26, range V. of Thetford, Megantic county, Q.—Coll., C. W. Willimott, 1882.—Cambrian, C. (3641.)
		Senecal's mine, Black Lake, Coleraine, Megantic county, Q.—Coll., E. Coste, 1884.—Cambrian, C. (4966, 4967.)
		Lionais' mine, Black Lake, Coleraine, Megantic county, Q.—Coll., E. Coste, 1884.—Cambrian, C. (4968.)
	_	Lot 11, range VIII. of Templeton, Ottawa county, Q.—Coll., S. Barlow, 1890.—Laurentian, A. (5996.)
	_	Lot 7 or 8, range IX. of Litchfield, Pontiac county, Q.—Laurentiau, A. (3506.)
	_	Lot 8, range IX. of Ross, Renfrew county, O.—Coll., C. W. Willimott, 1883.—Laurentian, A. (3642.)
		North Burgess, Lanark county, O.—Coll., H. G. Vennor, 1873.— Laurentian, A. (3645.)
	arrivani.	Lot 7, range XI. of Elzevir, Hastings county, O.—Presented by Joseph James, Bridgewater, O., 1890. (4764.)
Upright table-case 30.		Boston Asbestus Packing Company's mine, lot 27, range V. of Thetford, Megantic county, Q.—Coll., C. W. Willimott, 1882.—Cambrian, C 1. (3638.)
		(1) mill-board, manufactured from asbestus No. 3638. (3638a.) (2) steam packing do do do (3638b.)

do Nos. 3638a and b presented by the Boston Asbestus Packing Company; Nos. 3638c and d presented by Dr. Ells; No. 3638e presented by T. Sheridan.

do

do

do

do

do

do

do

do

(3638c.)

(3638d.)

(3638e.)

Specimens of this mineral are shown in upright wing-case 22.

(3) sheeting

(4) yarn

(5) mitts

#### MICA.

#### Biotite or magnesium-iron mica.

Biotite.—Lot 38, range I. of Bouchette, Ottawa county, Q.—Presented by P. Grace, 1891.—Laurentian, A. (821.)

Upright wing-case

#### Muscovite or potassium mica.

- Muscovite.—Villeneuve mica mine, lots 31 and 32, range I. of Villeneuve, Ottawa county, Q.—Presented by W. A. Allan, 1885.— Laurentian, A. (5229.)
  - Lots 4 and 5, range XI. of Miller, Frontenac county, O.—Presented by R. C. W. McCuaig, 1891.—Laurentian, A. (869.)
  - At the junction of Canoe River with the Coldwater River, B.C.—
     Coll., J. McEvoy, 1891. (867.)
  - One hundred and twenty miles north-east of Clinton, B.C.—Presented by F. W. Foster, 1885. (5251.)
  - Skuzzy Creek, near North Bend, west side of Fraser River, B.C.— Presented by J. W. Mackay, 1890. (5999.)

#### Phlogopite or magnesium mica.

- Phlogopite.—Lot 1, range II. of the Augmentation of Grenville, Argenteuil county, Q.—Coll., C. W. Willimott, 1889.—Laurentian, A. (792.)
  - Lot 9, range VI. of Grenville, Argenteuil county, Q.—Laurentian A. (794.)
  - Lot 17, range VII. of Grenville, Argenteuil county, Q.—Laurentian,
     A. (868,)
  - Lot 1, range X. of Grenville, Argenteuil county, Q.—Laurentian, A. (788,)
  - Lot 19, range VIII. of Portland, Ottawa county, Q.—Presented by Thomas Daly, 1887.—Laurentian, A. (5432.)
  - South half of lot 10, range X. of Templeton, Ottawa county, Q.—
     Coll., C. W. Willimott, 1882.—Laurentian, A. (2487.)
  - McLaurin's mine, lot 9, range XI. of Templeton, Ottawa county, Q.—Presented by J. McLaurin, 1887.—Laurentian, A. (5442.)
  - Hull mica mine, north half of lot 10, range V. of Hull, Ottawa county, Q.—Presented by E. B. Haycock, 1891.—Laurentian, A. (990.)
  - Lot 9, range XII. of Hull, Ottawa county, Q.—Presented by Thomas Warwicker, 1882.—Laurentian, A. (2454.)
  - Lot 13, range XV. of Hull, Ottawa county, Q.—Presented by C. E.
     D. Chubbuck, 1890. Laurentian, A. (4865.)
  - Lot 1, range IV. of Masham, Ottawa county, Q.—Laurentian, A. (4862.)
  - Aylwin, Ottawa county, Q.—Presented by S. R. Brook, 1889.— Laurentian, A. (787.)
  - Lot 22, range II. of Cawood, Pontiac county, Q.—Laurentian, A. (5576.)
  - South Burgess, Leeds county, O.—Presented by Capt. Thorpe.— Laurentian, A. (865.)
  - Lot 6, range VIII. of North Burgess, Lanark county. O.—Coll., C.
     W. Willimott, 1879.—Laurentian, A. (2540.)
  - North shore of Hudson Strait, opposite Upper Savage Island, Baffin Land.—Coll., R. Bell, 1875.—Laurentian, A. (5344.)

# VII.-BRINES, SALT, AND MINERAL WATERS.

#### BRINES AND SALT.

Upright wing-case 24.

Brine.—Baddeck, Victoria county, Cape Breton, N.S.—Coll., H. Fletcher, 1875.
—Carboniferous, G 1. (2591.)

 Salt Springs, two and a quarter miles east of Springhill Mines, Cumberland county, N.S.—Coll., S. Barlow, 1875.—Carboniferous, G.1. (2592.)

Salt.—Manufactured from a brine found at Sussex, King's county, N.B.—Coll., L. W. Bailey, 1875. (2593.)

Brine. - Kincardine, Bruce county, O .- Silurian, E 5. (2440.)

(1) Common salt manufactured from brine No. 2440. (2440a.)
(2) Fine do do do (2440b.)

Bruce Salt Company, Kincardine, O.

Salt (fine).—Manufactured from a brine found at Kincardine, Bruce county, O. Rightmyer's Salt Works, Kincardine, O. (2441.)

(common).—Manufactured from a brine found at Kincardine, Bruce county, O. (2442.)

(1) Fine salt, manufactured from the same brine as No. 2442.— Gray & Scott, Kincardine, O. (2442a.)

Brine.—Seaforth, Huron county, O.—Silurian, E 5. (2587.)

(1) Coarse salt, manufactured from brine No. 2587. (2587a.)

(2) Common fine salt do do do (2587b.)

(3) Ground table salt do do do (2587c.)
Coleman & Gouinlock, Seaforth, O.

Salt (coarse).—Manufactured from a brine found at Clinton, Huron county, O. (2588.)

(1) Fine salt, manufactured from the same brine as No. 2588. (2588a.)

(2) Dairy salt, manufactured from the same brine as No. 2588. (2588b.)

Stapleton Salt Works, Clinton, O.

Brine.—Goderich, Huron county, O.—Silurian, E 5. (2589.)

(1) Fine salt, manufactured from brine No. 2589.—Tecumseh Salt Works, Goderich, O. (2589a.)

— Goderich, Huron county, O.—Silurian, E 5. (2590.)

(1) Coarse salt, manufactured from brine No. 2590. (2590a.)

(2) Fine do do do (2590b.)

International Salt Works, Goderich, O.

Salt (fine).—Manufactured from a brine found at Goderich, Huron county, O.

Samuel Platt Goderich, O. (2504)

—Samuel Platt, Goderich, O. (2594.)

Brine.—Port Franks, Bosanquet, Lambton county, O. (2596.)

brine.—For Franks, Dosanquet, Lamoton county, O. (2590.)

(1) Coarse salt, manufactured from brine No. 2596.—Williams & Murray, Port Franks, O. (2596a.)

Salt deposit, from the surface at springs three miles north of Bell River, and a mile and a quarter back from the shore of Lake Winnipegosis, Manitoba.—Coll., D. B. Dowling, 1889. (2557.)

Saline deposit, from the bed of a dried up lake near Maple Creek, district of Assiniboia, N.W.T.—Coll., R. G. McConnell, 1883, (5564.)

From a lake thirty-three miles east of Wood Mountain Post,
 Traders Road, district of Assiniboia, N.W.T.—Coll., G. M.
 Dawson, 1874. (5565.)

# BRINES AND SALT-Continued.

Salt.—Salt River, one hundred miles north-west of Fort Chipweyan, Lake Athabasca, N.W.T.—Coll., John Macoun, 1875.—Devonian, F. (5204.)

Upright wing-case 24,-

Brine.—Nanaimo, Vancouver Island, B.C.—Coll., J. Richardson, 1872.—Cretaceous, K. (5205.)

Continued.

#### MINERAL WATERS.

Agreeably with the classification here adopted,—that of Dr. T. Sterry Hunt,

Class I .- Includes saline waters containing chloride of sodium, with large portions of chlorides of calcium and magnesium, sometimes with sulphates. The carbonates of lime and magnesia are either present only in very small quantities, or are altogether wanting.

Class II. - Includes a large number of saline waters, which differ from the first in containing besides the chlorides of sodium, calcium and magnesium, considerable portions of bicarbonates of lineand magnesia, the latter carbonate generally predominating. Small quantities of oxide of iron, and of baryta and strontia, are frequently present.

Class III.—Includes those saline waters which contain, besides chloride of sodium, a portion of carbonate of soda, with bicarbonates of lime and magnesia. Small amounts of baryta, strontia, and of boracic and phosphoric acids, are often present in these waters, and bromides and iodides are very rarely wanting.

Class IV .- Differs from the last in containing but a small proportion of chloride of sodium, while the carbonate of soda predominates.

Class V .- Includes acid waters, which are remarkable for containing a large proportion of free sulphuric acid, with sulphates of lime, magnesia, protoxide of iron, and alumina.

Class VI.—Includes some neutral saline waters in which the sulphates of lime, magnesia, and the alkalies predominate, chlorides being present only in very small amounts.

#### Waters of the first class.

Mineral water.—Seigniory of Rivière Ouelle, Kamouraska county, Q. (2597.)

Bay St. Paul, Charlevoix county, Q. (2598.)

- Saline spring, Eastman's Springs, Gloucester, Carleton county, O. (2599.)
- McDonell's spring, Hallowell, Prince Edward county, O. (2600.)(2601.)οb Hubbs' spring
- Upper well, Kingston, Frontenac county, O. (2602.)
- (2603.)Lower well do ob
- Lot 32, range III. of Whitby, Ontario county, O. (2604.)
- Ancaster, Wentworth county, O. (2605.)

#### Waters of the second class.

Mineral water.—Trudel's spring, Ste. Geneviève, Champlain county, O. (2606.) do (2607.)

Ferry spring Caxton, St. Maurice county, Q. (2608.)

St. Léon, Maskinongé county, Q. (2609.)

#### MINERAL WATERS-Continued.

#### Waters of the second class-Continued.

Upright wing-case 24. -Continued. Mineral water-Lanoraie, Joliette county, Q (2610.)

- Boucher's spring, Berthier, Berthier county, Q. (2611.)
  - Aurora spring, Point-du-Jour, L'Assomption county, Q. (2612.)
- Sulphur spring, Pike River, Sabrevois, Iberville county, Q. (2613.) (2614.)
- Saline spring do do do
- Loizeau's spring, Baie du Febvre, Nicolet county, Q. (2615.)do (2616.)Lefort's spring
- Lot 9, range X, of Alfred, Prescott county, O. (2617.)
- Intermittent spring, Caledonia, Prescott county, O. (2618.)
- Plantagenet spring, Plantagenet, Prescott county, O. (2619.)
- do Georgian spring do (2620.)
- McIntosh's spring ob (2621.)
- Borthwick's spring, lot 19, range IV. of Gloucester, Carleton county. O. (2622.)
- Ancaster, Wentworth county, O. (2623.)
- St. Catharines, Lincoln county, O. (2624.)

#### Waters of the third class.

Mineral water.—Courchêne's spring, Baie du Febvre, Nicolet county, Q. (2625.)

- Houle's spring dυ do (2626.)
- Lot 25, range III. of Rawdon, Montcalm county, Q. (2627,)
  - Providence spring, St. Hyacinthe, St. Hyacinthe county, Q. (2628.)
  - Saline spring, Varennes, Verchères county, Q. (2629.)
- Gas spring do (2630.)
- Belœil, Verchères county, Q. (2631.)
- Cherrier's spring, Chambly, Chambly county, Q. (2632.)
- Gas spring, Caledonia, Prescott county, O. (2633,)
- Saline spring do (2634.)
  - White sulphur spring (2635.)
  - Lot 9, range VI. of Hawkesbury, Prescott county, O. (2636.) Sulphur spring, Eastman's Springs, Gloucester, Carleton county, O.
  - Gillan's spring, lot 10, range II. of Fitzroy, Carleton county, O. (2638.)

#### Waters of the fourth class.

Mineral water. Marcotte's Mills, Jacques Cartier River, Portneuf county, Q. (2639.)

- Méthot's Mills, Lotbinière county, Q. (2640.)
  - Hébert's springs, Nicolet, Nicolet county, Q. (2641.)
- Jetté's spring, Chambly, Chambly county, Q. (3729.)
- St. Ours, Richelieu county, Q. (3730.)
- Miller's spring, Henryville, Iberville county, Q. (3731.)
- Lot 27, range III. of Rawdon, Montcalm county, Q. (3732.)

#### MINERAL WATERS-Continued.

# Waters of the fifth class.

Mineral v	vater.—McKinley's spring, Niagara, Lincoln county, O. Chippewa, Welland county, O. (3734,)	(3733.)	Upright wing-case
	Sour spring, Indian Reserve, Tuscarora, Brant county, (	0. (3735.)	Continued

#### Waters of the sixth class.

Mineral	water.—Young's spring, Hamilton, Wentworth county, O.	(3736.)
	Lot 3, range XII. of Charlotteville, Norfolk county, O.	(3737.)
-	Blue spring lot 52 of Brent Propos country () (2720)	(0.000)

# VIII.—MINERALS APPLICABLE TO THE FINE ARTS AND JEWELLERY.

JEWELLERY.					
Miscellaneous Ornamental Minerals and Rocks.					
Amethyst.—Amethyst Harbour, Thunder Bay, Lake Superior, O.—Coll., R. Upright Bell, 1875.—Cambrian, C 1. (843.)					
Agate.—8	cot's Bay, King's county, N.S.—Coll., C. W. Willimott, 1883.— Triassic, H. (4819.)	25.			
-	cut and polished (two specimens).—From the same locality as No. 4819.—Coll., C. W. Willimott, 1883.—Triassic, H. (4820.)				
_	cut and polished.—Victoria Harbour, King's county, N.S.—Coll., C. W. Willimott, 1883.—Triassic, H. (4927.)				
	Horseshoe Cove, Cape d'Or, Cumberland county, N.S.—Coll., C. W. Willimott, 1888.—Triassic, H. (5680.)				
	(moss).—Cut and polished.—Two Islands, Cumberland county, N.S.—Coll., C. W. Willimott, 1888.—Triassic, H. (5715.)				
-	cut and polished.—Michipicoten Island, Lake Superior, O.—Cambrian, C 1. (826.)				
_	(in trap).—Michipicoten Island, Lake Superior, O.—Cambrian, C 1. (2574.)				
_	cut and polished.—Thunder Bay, Lake Superior, O.—Cambrian, C 1. Framed tablet of 154 specimens set in plaster. (830.)				
_	cut and polished (two specimens).—Thunder Bay, Lake Superior, O.—Cambrian, C 1. (844.)				
	cut and polished.—From mountains at the head of Nicoamen River, B.C.—Coll., G. M. Dawson, 1889. (1529.)				
	cut and polished.—Stuart Lake, B.C.—Coll., G. M. Dawson, 1879. (5555.)				
_	cut and polished.—Vicinity of Kamloops, B.C.—Coll., G. M. Dawson, 1879. (5719.)				
	Savona Mountain, south of Savona station, C. P. R., B.C.—Coll., G. M. Dawson, 1890. (5973,)				
_	cut and polished (four specimens).—From the same locality as No. 5973.—Coll., G. M. Dawson, 1890. (5974.)				
_	cut and polished (four specimens).—Queen Charlotte Islands, B.C.—Presented by the Marquis of Lorne, 1883. (4645.)				
Prase (var	of quartz).—Cut and polished.—Savona Mountain, south of Savona station, C. P. R., B.C.—Coll., G. M. Dawson, 1890. (1388.)				
7.0					

# Miscellaneous Ornamental Minerals and Rocks.-Continued.

Unright wing-case 25.-Continued.

Jasper.—Cut and polished.—Grindstone Island, Magdalen Islands, Q.—Coll., J. Richardson, 1880. (2581.)

cut and polished (three specimens). -Rivière Ouelle, Kamouraska county, Q.—Coll., J. Richardson, (855.)

cut and polished .- Lot 15, range X. of Hull, Ottawa county, Q.-Coll., A. E. Barlow, 1883.—Laurentian, A. (4656.)

cut and polished.—From the same locality as No. 4656.—Coll. C. W. Willimott, 1883.—Laurentian, A. (5316.)

Porcellanite, -Two Islands, Cumberland county, N.S.-Coll., C. W. Willimott. 1883. (5533.)

(The following eight named are mounted on glass in a frame.)

Amethyst.—Cut and polished (twenty-one specimens). -- Thunder Bay, Lake Superior, O. (854.)

Jasper, agate, gneiss and labradorite, mosaic of, (857.)

Agates, mosaic of, (858.)

Jasper, agate, gneiss, epidote and labradorite, mosaic of, (859.)

Jasper, agate, do heliotrope ob do (2498.)

Agate.—Seal and impression from same. (2499.)

do do (2500.)Heliotrope

Labradorite.—Cut and polished, in imitation of caterpillars, &c. (nine specimens). (2501.)

(The following six named are mounted on glass in a frame.)

Labradorite.—Cut and polished (nine specimens).—Labrador. (2491.)

Jasper conglomerate.—Cut and polished.—Bruce Mines, Lake Huron, O. (2492.)

Epidote.—Cut and polished.—Shickshock Mountains, Gaspé, Q. (2493.)

North Burgess, Lanark county, O. (2495.) dо Perthite.

Agates and carnelian.—Cut and polished (ten specimens).—Lake Superior, O. (2496.)

Gneiss.—Cut and polished (six specimens).—Ramsay, Lanark county, O. (2497.) Potstone (compact chlorite), vase of .-- Lot 26, range II. of Bolton, Brome county, Q. (674.)

Labradorite, vase of.—Grenville, Argentenil county, Q. (846.)

Lithographic stone, vase of.—Island of Anticosti, Q. (847.)

Jasper conglomerate, vase of.—Bruce Mines, Łake Huron, O. (848.)

Gaspé pebbles.—Gaspé, Gaspé county, Q.—Coll., T. C. Weston. (5262.)

Perthite (interlaminated orthoclase and albite). - Lot 3, range VI. of North Burgess, Lanark county, O.—Laurentian, A. (836.)

cut and polished (four specimens).—From the same locality as No. 836. (822.)

Albite (peristerite, Thom.).—Cut and polished (five specimens).—Lot 19, range IX. of Bathurst, Lanark county, O.—Laurentian, A. (824.)

Labradorite.—Cut and polished.—Labrador.—Laurentian, A. (841.)

Wilsonite.—Cut and polished.—Bathurst, Lanark county, O.—Laurentian, A. (834.)

Sodalite,—Cut and polished.—Vicinity of Ice River, a branch of the Beaver-foot River, south of Kicking Horse Pass, Rocky Mountains, B.C.—Coll., G. M. Dawson, 1884. (5370.)

Nephrite (jade).—From near old Indian village, Lytton, B.C. (5736-5740.)

Lewis River, a tributary of the Yukon River, N.W.T. (5741-5745.)

Note.—Of the foregoing Nos. 5736-5738 and 5741-5745 were collected by Dr. G. M. Dawson (1887, 1888), and Nos. 5739 and 5740, by Dr. B. J. Harrington (1888).

#### Miscellaneous Ornamental Minerals and Rocks-Continued.

Slate from Danville, Shipton, Richmond county, Q., inlaid with serpentine and limestone. (551.)

Upright wing-case 25.—
Continued,

 inlaid with perthite and peristerite in imitation of a butterfly—body made of labradorite. (853.)

(The following ten specimens are grouped on glass on wooden rest.) Serpentine.—Cut and polished.—Melbourne, Richmond county, Q. (5263.)

Jasper conglomerate.—Cut and polished.—Bruce Mines, Lake Huron, O. (5264.)

Gneiss.—Cut and polished.—Ramsay, Lanark county, O. (5265.)

Porphyry do Grenville, Argenteuil county, Q. (5266.)
Wilsonite do Bathurst, Lanark county, O. (5267.)
Serpentine do Orford, Sherbrooke county, Q. (5268.)

Limestone do Madoc, Hastings county, O. (5269.)

Greiss do Grenville, Argenteuil county, Q. (5270.)

Gneiss do Grenville, Argenteuil county, Q. (5270.)

Epidote do Shickshock Mountains, Gaspé county, Q. (5271.)

Labradorite do Labrador. (5272.)

Porphyritic pebble.—Schooner Pond beach, Cape Breton county, N.S. (4648.)
Porphyry.—Cut and polished.—Lot 9, range—of the Augmentation of Grenville,
Argenteuil county, Q.—Laurentian, A. (2556.)

cut and polished.—Lot 4, range VI. of Grenville, Argenteuil county,
 Q.—Laurentian, A. (2558.)

— cut and polished.—Lot 8, range VIII. of Chatham, Argenteuil county, Q.—Laurentian, A. (2490.)

- inlaid cross.—From the same locality as No. 2490. (2488.)

— cut and polished.—Lot 3, range V. of Grenville, Argenteuil county, Q.—Laurentian, A. (5369.)

cut and polished.—South side of Desbarat's location, Lake Superior,
 O.—Coll., W. E. Logan, 1846. (4928.)

Alabaster, (gypsum) cross of.—Hillsborough, Albert county, N.B.—Coll., C. W. Willimott, 1890. (2482.)

Serpentine.—Polished (four specimens).—Templeton, Ottawa county, Q.—Presented by A. Taylor, Ottawa, 1886.—Laurentian, A. (832.)

Serpentine limestone,—Texada Island, B.C.—Coll., G. M. Dawson, 1875.—Carboniferous, G. Four-inch cube, polished. (2489.)

Red granite, small column of.—Polished.—St. George, Charlotte county, N.B.

—Presented by the Bay of Fundy Red Granite Company,
1875. (2559.)

Amethyst, associated with fluor coated with pyrite.—McKenzie River, Thunder Bay, Lake Superior, O.—Coll., R. Bell, 1875.—Huronian, B. (5144.)

Upright wing-case 26.

Jasper.—Cape Sharp, Cumberland county, N.S.—Coll., C. W. Willimott, 1888.
—Triassic, H. (5678.)

— From the same locality as No. 5678, but differing in colour.—Coll., C. W. Willimott, 1888.—Triassic, H. (5721.)

— Lot 15, range X. of Hull, Ottawa county, Q.—Coll., C. W. Willimott, 1883.—Laurentian, A. (2448.)

Lot 6, range I. of Grenville, Argenteuil county, Q.—Laurentian, A. (4657.)

Jasper conglomerate.—Bruce Mines, Lake Huron, district of Algoma, O.—Coll., R. Bell, 1875.—Huronian, B. (863.)

Rock Lake, Thessalon River, district of Algoma, O.—Coll., G. F.
 Lount, 1876.—Huronian, B. (4651.)

Quartzite, polished.—St. Joseph Island (north shore), Lake Huron, O.—Presented by C. Chapman, 1889.—Huronian, B. (3683.)

101

#### Miscellaneous Ornamental Minerals and Rocks-Continued.

Upright wing-case 26.—
Continued.

Banded chert,—Thunder Bay, Lake Superior, O. (828.)

Albite.—Villeneuve mica mine, lot 31, range I. of Villeneuve, Ottawa county, Q. —Coll., C. W. Willimott, 1886.—Laurentian, A. (5468.)

Huronite, polished.—Timber limit No. 90, a quarter of a mile north of Murphy
Lake, district of Algoma, O.—Coll., A. E. Barlow, 1891.—
Huronian, B. (995.)

Wilsonite.—Lot 27, range VIII. of Portland East, Ottawa county, Q.—Coll., J. F. Torrance, 1885.—Laurentian, A. (4655.)

Serpentine, polished (four specimens).—Mount Albert, Shickshock Mountains, Gaspé county, Q.—Coll., J. Richardson, 1858. (4654.)

- polished (five specimens).—Lot 12, range XII. of Orford, Sherbrooke county, Q.—Coll., J. Richardson.—Cambrian, C 1. (2503.)
- polished (five specimens).—Brompton Lake, Orford, Sherbrooke county, Q.—Cambrian, C1. (4650.)
- polished.—Lot 26, range II. of Grenville, Argenteuil county, Q.—Coll., C. W. Willimott, 1885.—Laurentian, A. (805.)
- polished.—Lot 2, range VIII. of North Burgess, Lanark county, O.—
  Presented by W. J. Morris, Perth, O., 1875.—Laurentian, A.
  (4659.)
- polished.—North Burgess, Lanark county, O.—Laurentian, A. (4660.)

Rensselaerite.—Lot 14, range IX. of Hull, Ottawa county, Q.—Coll., C. W. Willimott, 1885.—Laurentian, A. Dressed block, 12 by 12 by 6 inches. (5363.)

Limestone conglomerate, polished.—Trois Pistoles, Temiscouata county, Q.—Cambrian, C. (4649.)

Limestone, polished.—Hampstead, Queen's county, N.B.—Coll., L. W. Bailey, 1871.—Carboniferous, G 1. (2575.)

- polished.—St. Joseph, Beauce county, Q.—Cambrian, C1. (838.)
- polished.—Lot 21, range III. of Leslie, Pontiac county, Q.—Coll.,
   H. G. Vennor, 1876.—Laurentian, A. (4652.)
- polished.—Amprior, Renfrew county, O.—Laurentian, A. (850.)
  - polished.—West side of the Gatineau River, Wakefield (?), Ottawa county, Q.—Laurentian, A. (5032.)
- polished (three specimens).—Red Rock, Nipigon Bay, Lake Superior, O.—Coll., E. D. Ingall, 1884.—Cambrian, C. (5033.)
- polished (two specimens).—Echo Lake, district of Algoma, O.—Presented by the Warmington Stone and Marble Co., Garden River, O., 1891.—Huronian, B. (347.)
- -- polished.—Garden River, district of Algoma, O.—Presented by the Warmington Stone and Marble Company, Garden River, O., 1891. (376.)

Gneiss.—Lot 3, range V. of Grenville, Argenteuil county, Q.—Laurentian, A. (4658.)

Diorite.—Cut and polished.—Acton, Bagot county, Q. (842.)

#### Lithographic stone.

Lithographic stone.—Lot 7, range IV. of Marmora, Hastings county, O.—Cambro-Silurian, D 1. (864.)

- (1) Lithographic stone (864) on which is engraved facsimile autographs of all the governors of Canada, both French and English, from the time of Champlain, in 1612, to that of Lord Monck, in 1862; with the exception of two of the French governors in the first half of the seventeenth century. (864a.)
- (2) Lithographic stone (864) on which is engraved a map. (864b.)

#### Lithographic stone—Continued.

Upright Lithographic stone—Lot 14, range XV. of Harvey, Peterborough county, O.—Cambro-Silurian, D 1. (2502.) wing-case 26.— Lot 31, ranges I. and II. of Brant, Bruce county, O.—Silurian, E. Continued. (856.) (1) Lithographic stone (856) on which is engraved a Bank cheque. (856a.) (2) Lithographic stone (856) on which is engraved a vignette of an Indian chief. (856b.) (3) Lithographic stone (856) on which is engraved a drawing of "Eozoon Canadense." (856c.) Inverhuron Quarries, Inverhuron, Bruce county, O. The following series of ornamental stones were cut, polished and presented by C. P. Willimott & Co., of Ottawa. Actinolite in quartz (Thetis hair stone).—Hull, Ottawa county, Q. (5902.) Table-case 69. Agate.—Two Islands, Cumberland county, N.S. (5891, 5897.) (5893, 5901.) do Cape d'Or do Cape Spencer do do (5908.)Blomidon, King's county, N.S. (5894.)do (5904.)Scot's Bay do Templeton, Ottawa county, Q. (5905.) Lake Superior, district of Thunder Bay, O. (5924.) Albite.—Villeneuve, Ottawa county, Q. (5880.) Ross, Renfrew county, O. (5882.) Amazon stone.-Wakefield, Ottawa county, Q. (5876.) Amethyst.—Lake Superior, district of Thunder Bay, O. (5887.) Asteriated quartz.—Wakefield, Ottawa county, Q. (5877.) Aventurine felspar.—Sebastopol, Renfrew county, O. (5872.) Ross, Renfrew county, O. (6532.) Breccia.—Grenville, Argenteuil county, Q. (5928.) Banded chert, -James Bay, Hudson Bay. (5923.) Chlorastrolite.—Lake Superior. (5881.) Garnet.—Stikeene River, B.C. (5886.) Wakefield, Ottawa county, Q. (5889.) Heliotrope. -Two Islands, Cumberland county, N.S. (5906.)do do do Hornstone .-(5895.) Jasper.—Fisherman's Cove do do (5898, 5900.) Two Islands do do do (5915,)Partridge Island (5914, 5919, 5920.) Cape Sharp do do Gaspé, Gaspé county, Q. (5935.) Hull, Ottawa county, Q. (5896, 5926.) Hull, Ottawa county, Q. (5917, 5921.) Bruce Mines, Lake Huron, district of Algoma, O. (5913.) (5540.)Mamainse, Lake Superior, Cape Jones, Hudson Bay. (5918.) Jasper agate.—Two Islands, Cumberland county, N.S. (5925.) Jasper conglomerate. -Bruce Mines, Lake Huron, district of Algoma, O. (5912.)

Labradorite.—Paul Island, Labrador. (5875.)

# Ornamental stones, cut and polished-Continued.

Table-case
69.-Continued.

Serpentine limestone—Grenville, Argenteuil county, Q. (5933.)

- (Eozoon Canadense).—Petite Nation, Ottawa county, Q. (5934.)

Limonite.—Londonderry, Colchester county, N.S. (5883.)

Microcline.—Sebastopol, Renfrew county, O. (5885.)

Moss agate. -Two Islands, Cumberland county, N.S. (5899, 5909.)

— Fisherman's Cove do (5903.)
— Partridge Island do (5916.)

Obsidian.—Cape d'Or do (5890.)

Orthoclase.—Wakefield, Ottawa county, Q. (5873.)

Oligoclase?—Psquandeburg Island, (near Parry Sound) Georgian Bay, Lake Huron, O. (5884.)

Peristerite,—Bromley, Renfrew county, O. (6533.)

Perthite.—North Burgess, Lanark county, O. (5870, 5871.)

Porcellanite.—Two Islands, Cumberland county, N.S. (5892, 5907.)

Porphyry.—Grenville, Argenteuil county, Q. (5911.)

— Near Onaping, district of Nipissing, O. (5927.)

Pyrallolite.—Grenville, Argenteuil county, Q. (5929.)

- Hull, Ottawa county, Q. (5930.)

Banded quartz—Wakefield, Ottawa county, Q. (5922.)

Retinite (Chemawinite).—Cedar Lake, district of Saskatchewan, N.W.T. (5551.)

Scapolite.—Augmentation of Grenville, Argenteuil county, Q. (5878.)

Serpentine.—Portland, Ottawa county, Q. (5931.)

Templeton do (5932.)

Sodalite.—Ice River, branch of the Beaver-foot River, south of Kicking Horse Pass, Rocky Mountains, B.C. (5874.)

Thompsonite.—Lake Superior, district of Thunder Bay, O. (5879.)

Tourmaline. -- Wakefield, Ottawa county, Q. (5888.)

# IX.—MINERALS EMPLOYED, WITH OR WITHOUT PREVIOUS PREPARATION, AS FERTILIZERS.

#### Apatite, phosphate of lime.

Upright wing-case

Apatite.—Lot 15, rauge V. of Grenville, Argenteuil county, Q.—Coll., C. W. Willimott, 1887.—Laurentian, A. (807.)

Cameron's mine, Lochaber, Ottawa county, Q.—Presented by W. C.
 Edwards, 1883.—Laurentian, A. (2538.)

Emerald mine, lot 19, range XII. of Buckingham, Ottawa county, Q.—Coll., J. F. Torrance, 1883.—Laurentian, A. (949.)

- Spring mine, lot 9, range X. of Templeton, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (1153.)

McLaurin's mine, lot 10, range XI. of Templeton, Ottawa county, Q.—Coll., C. W. Willimott, 1883.—Laurentian, A. (5031.)

McLaurin's mine, lot 11, range XI. of Templeton, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (1128.)

Lot 22, range XIII. of Templeton, Ottawa county, Q.—Presented by F. Fooks, 1882.—Laurentian A. (1171.)

— North Star mine, lot 18, range VII. of Portland East, Ottawa county, Q.—Coll., J. F. Torrance, 1883.—Laurentian, A. (978.)

# Apatite, phosphate of lime-Continued.

Apatite—Dugway pit, High Rock mine, lot 7, range VIII. of Portland West, Ottawa county, Q.—Coll., J. F. Torrance, 1883.—Laurentian, A. (1024.)

Upright wing-case 27.—
Continued.

- Ed. McAndrew's pit, Star Hill mine, lot 8, range VIII. of Portland West, Ottawa county, Q.—Presented by Wm. McIntosh, 1883.—Laurentian, A. (3741.)
- Bonanza pit, Star Hill mine, lot 7, range IX. of Portland West, Ottawa county, Q.—Presented by Wm. McIntosh, 1883.— Laurentian, A. (3742.)
  - Hunter's pit, Star Hill mine, lot 7, range IX. of Portland West, Ottawa county, Q.—Presented by Wm. McIntosh, 1883.— Laurentian, A. (3743.)
  - Smith's pit, Star Hill mine, lot 9, range VIII. of Portland West,
    Ottawa county, Q.—Presented by Wm. McIntosh, 1883.—
    Laurentian, A. (3744.)
- Barber's mine, lot 17, range XVI. of Hull, Ottawa county, Q.—Coll., C. W. Willimott, 1883.—Laurentian, A. (951.)
  - Haldane's mine, lot 12, range I. of Wakefield, Ottawa county, Q.— Coll., J. F. Torrance, 1883.—Laurentian, A. (744.)
    - Wilson's mine, lot 17, range II. of Wakefield, Ottawa county, Q.— J. F. Torrance, 1883.—Laurentian, A. (1207.)
    - Moore's mine, lot 18, range II. of Wakefield, Ottawa county, Q.—Coll., J. F. Torrance, 1883.—Laurentian, A. (143.)
- Lot 24, range IV. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1883.—Laurentian, A. (959.)
- Harris' mine, lot 30, range IX. of Wakefield, Ottawa county, Q.—Coll., J. F. Torrance, 1883.—Laurentian, A. (953.)
  - Lots 11 and 12 (west half), range VII. of North Burgess, Lanark county, O.—Laurentian, A. (513.)
    - (1) Apatite ground for conversion into superphosphate. (513a.)
    - (2) Superphosphate of lime prepared from 513a. (513b.)
    - Presented by A. Cowan, Brockville Chemical and Superphosphate Works, 1875.
- Lot 16, range III. of North Burgess, Lanark county, O.—Coll., H.
   G. Vennor, 1871.—Laurentian, A. (785.)
- Lot 2, range VIII. of North Burgess, Lanark county, O.—Coll., H.
   G. Vennor, 1873.—Laurentian, A. (956.)
- Lot 9, range V. of North Burgess, Lanark county, O.—Laurentian, A. (666.)
- North Elmsley, Lanark county, O.—Laurentian, A. (774.)
- green.—Lot 25, range VIII. of North Elmsley, Lanark county, 0.
   Laurentian, A. (781.)
  - red.—Lot 25, range VIII. of North Elmsley, Lanark county, O.— Laurentian, A. (1020.)
- Sebastopol, Renfrew county, O.—Presented by F. Fooks, 1882.— Laurentian, A. (3705.)
- Lot 1, range XVII. of Bedford, Frontenac county, O.—Coll., H. G.
   Vennor, 1871.—Laurentian, Λ. (786.)
- Lot 14, range VI. of Storrington, Frontenac county, O.—Presented by W. J. Morris, 1877.—Laurentian, A. (2539.)
- Lot 21, range XV. of Storrington, Frontenac county, O.—Coll., H.
   G. Vennor, 1875.—Laurentian, A. (957.)
  - Lot 28, range I. of Hinchinbrook, Frontenac county, O.—Presented by J. P. Donnely, 1875.—Laurentian, A. (958.)

Specimens illustrating the distribution of apatite are shown in table-cases 34 and 35 (in part), and the mineral associations of apatite are shown in table-cases 35 (in part) and 36 and in upright table-cases 27 and 28.

#### Phosphatic rock.

Upright wing-case 27.—
Continued.

Phosphatic rock.—Mouth of Macintosh Brook, north shore of East Bay, Cape Breton county, N.S. (693,)

- Rivière Ouelle, Kamouraska county, Q.—Cambrian, C. (952.)
- Wilson River, section 18, township 25, range XX. west of the principal meridian, Manitoba.—Coll., J. B. Tyrrell, 1887. (6525.)

#### Gypsum.

Gypsum (ground).—Windsor, Hants county, N.S.—Coll., Prof. How, 1871.—Carboniferous, G 1. (778.)

- Beaver Brook, Colchester county, N.S.—Carboniferous, G 1. (947.)
- Antigonish, Antigonish county, N.S.—Carboniferous, G 1. (1205.)
- Petitcodiac, Westmoreland county, N.S.—Carboniferous, G 1. (1219.)
- Oneida, Haldimand county, O.—Silurian, E 5. (657.)
- Mount Healy, Haldimand county, O.—Silurian, E 5. (1203.)
- Paris, Brant county, O.—Silurian, E 5. (1204.)

Specimens of gypsum from the more important localities of its occurrence are shown in upright wing case 19.

#### Marls.

Marl.—Marl Lake, Island of Anticosti (west end), Q.—Presented by F. W. Stockwell, 1885.—Post-Tertiary, M 3. (5135.)

- Ste. Rose, Laval county, Q. (762.)
- Lots 156 and 157 of St. Armand, Missisquoi county, Q.—Post-Tertiary, M 3. (763.)
  - Lot 4, range XI. of Stanstead, Stanstead county, Q.—Post-Tertiary, M 3. (771.)
- Thornberry, west side of Mount Royal, Montreal, Hochelaga county, Q.—Post-Tertiary, M 3. (758.)
- River St. Pierre, Hochelaga county, Q.—Post-Tertiary, M 3. (766.)
- Ward No. 5, Hull, Ottawa county, Q.—Presented by J. McArthur, 1885.—Post-Tertiary, M 3. (5117.)
- Lot 17, range VII. of Calumet, Pontiac county, Q.—Presented by E. Marceau, 1891.—Post-Tertiary, M 3. (757.)
- Lot 18, range IV. of West Hawkesbury, Prescott county, O.—Post-Tertiary, M 3. (768.)
- Nepean, Carleton county, O.—Post-Tertiary, M 3. (769.)
- Belleville, Hastings county, O.—Presented by H. Yeomans, 1875.— Post-Tertiary, M 3. (756.)
- Lots 15 and 16, range II. of Sheffield, Addington county, O.--Post-Tertiary, M 3. (764.)
- Storrington, Frontenac county, O.-Post-Tertiary, M 3. (770.)

#### Marls Continued.

Marl—Lot 25, range XV. of Carrick, Bruce county, O.—Post-Tertiary, M 3. (759.)

3. (759.)
Lot 26, range I. of Bentinck, Grey county, O.—Post-Tertiary, M 3. (765.)

(765.)

- Rockwood, Wellington county, O.—Post-Tertiary, M 3. (605.)

From thick bed overlying pebble conglomerate, Forks of Farewell Creek and White Mud River, district of Assiniboia, N.W.T.
 —Coll., R. G. McConnell, 1883.—Tertiary, L 2. (3750.)

 Found underneath the soil on large proportions of the surface of Cypress Hills, district of Assiniboia, N.W.T.—Coll., R. G. McConnell, 1883.—Tertiary, L 2. (3751.)

# Upright wing-case 27.— Continued.

# SPECIMENS ILLUSTRATING THE DISTRIBUTION OF APATITE.

Apatite.—Lot 5, range XV. of Grenville, Argenteuil county, Q.—Coll., C. W. Tai Willimott, 1889.—Laurentian, A. (1785.)

Lot 28, range VI. of Buckingham, Ottawa county, Q.—Presented by
 W. H. Dickson, 1889.—Laurentian, A. (1796.)

Grant mine, lot 18, range XII. of Buckingham, Ottawa county, Q.
 —Coll., B. J. Harrington, 1878.—Laurentian, A. (1797, 1798, 1799.)

Lot 17, range XII. of Buckingham, Ottawa county, Q.—Coll., B.J.
 Harrington, 1878.—Laurentian, A. (1800, 1801, 1802.)

 Lot 26, range XII. of Buckingham, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1803.)

Lot 27, range XII. of Buckingham, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1804.)

Lochaber, Ottawa county, Q.—Coll., H. G. Vennor, 1878.—Laurentian, A. (1806.)

Jackson Rae mine, lot 9, range X. of Templeton, Ottawa county, Q.
—Coll., C. W. Willimott, 1882.—Laurentian, A. (3752.)

McLaurin's mine, lot 10, range XI. of Templeton, Ottawa county,
 Q.—Coll., C. W. Willimott, 1885.—Laurentian, A. (3753.)

McLaurin's mine, lot 11, range XI. of Templeton, Ottawa county,
 Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3754.)

 Lot 8, range XII. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (3755.)

Lot 12, range XII. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1786-1795.)

Lot 22, range XIII. of Templeton, Ottawa county, Q. (3756.)

-- Watt's mine, lot 6, range I. of Portland East, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1807-1811.)

Lot 7, range I. of Portland East, Ottawa county, Q.—Coll., B. J. Harrington, 1878—Laurentian, A. (1812.)

Lot 7, range VII. of Portland West, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1813.)

Lot 1, range VIII. of Portland West, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1814.)

Lot 27, range VIII. of Yortland East, Ottawa county, Q.—Coll., J.
 F. Torrance, 1883.—Laurentian, A. (1815.)

Lot 15, range X. of Hull, Ottawa county, Q.—Coll., C. W. Willimott, 1883.—Laurentian, A. (3702.)

Table-case

Table-case

34.— Continued.

# SPECIMENS ILLUSTRATING THE DISTRIBUTION OF

Apatite-Lot 15, range XI. of Hull, Ottawa county, Q.-Coll., C. W. Willi-

Lot 10, range XIV. of Hull, Ottawa county, Q.—Coll., C. W. Willi-

Lot 31, range X. of Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1884.—Laurentian, A. (4846.)
 Lot 21, range XV. of Storrington, Frontenac county, O.—Coll., H.

Lot 14, range VI. of Storrington, Frontenac county, O.—Presented by W. J. Morris, 1877.—Laurentian, A. (1828.)
Lot 10, range X. of Loughborough, Frontenac county, O.—Presented by W. J. Morris, 1875.—Laurentian, A. (1829.)
McFarlane's mine, lot 23, range XII. of Loughborough, Frontenac county, O.—Presented by W. J. Morris, 1883.—Laurentian,

G. Vennor, 1875.—Laurentian, A. (1827.)

mott, 1883.—Laurentian, A. (3703.)

mott, 1882.—Laurentian, A. (3714.)

	_	Moore's mine, lot 12, range XVI. of Hull, Ottawa county. Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3715.)
		Barber's mine, lot 17, range XV1. of Hull, Ottawa county, Q.—Coll., C. W. Willimott, 1883.—Laurentian, A. (3716.)
		Haldane's mine, lot 12, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1883.—Laurentian, A. (3760.)
	_	Wilson's mine, lot 17, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1883. Laurentian, A. (3707.)
Table-case 35.		Wilson's mine, lot 17, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1883.—Laurentian, A. (3708.)
		Moore's mine, lot 18, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1883.—Laurentian, A. (3758.)
		South half of lot 24, range IV. of Wakefield, Ottawa county, Q.— Presented by J. A. Gemmill.—Laurentian, A. (1826.)
		Lot 7, range VII. of Bowman, Ottawa county, Q.—Laurentian, A. (4822.)
	_	Youman's mine, Wells, Ottawa county, Q.—Coll., J. F. Torrance, 1883.—Laurentian, A. (4971.)
		Lot 27, range?, of Litchfield, Pontiac county, Q.—Laurentian, A. (1576.)
	-	Lot 3, range III. of March, Carleton county, O.—Presented by E. Scharf.—Laurentian, A. (4626.)
,		North-west half of lot 20, range II. of Huntley, Carleton county, O.—Coll., C. W. Willimott, 1888.—Laurentian, A. (5662, 5663.)
		North Elmsley, Lanark county, O.—Coll., H. G. Vennor, 1875.—Laurentian, A. (1816, 1817, 1818.)
	_	Lot 8, range IX. of Bathurst, Lanark county, O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1819.)
	•	Foley mine, lot 11, range VIII. of Bathurst, Lanark county. O.—Coll., B. J. Harrington, 1873.—Laurentian, A. (1820.)
	_	Lot 3, range XI. of Drummond, Lanark county, O.—Laurentian, A. (1833.)
	-	Adams' mine, lot 10, range VI. of North Burgess, Lanark county, O.—Coll., C. W. Willimott, 1879.—Laurentian, A. (1822, 1823.)
	-	Cowan's mine, lots 11 and 12, range VII. of North Burgess, Lanark county, O.—Presented by A. Cowan, 1875.—Laurentian, A.

(1824, 1825.)

A. (1830.)

# SPECIMENS ILLUSTRATING THE DISTRIBUTION OF APATITE—Continued.

Apatite—Lot 1, range XVII. of Bedford, Frontenac county, O.—Coll., H. G. Vennor, 1871.—Laurentian, A. (1832.)

Lot 13, range XI. of Monmouth, Peterborough county, O.—Presented by W. H. Lockhart Gordon, 1890.—Laurentian, A. (5966.)

Table-case 35.—
Continued.

- Lot 14, range XI. of Monmouth, Peterborough county, O.—Presented by W. H. Lockhart Gordon, 1890.—Laurentian, A. (5967.)
- Lot 15, range XI. of Monmouth, Peterborough county, O.—Presented by W. H. Lockhart Gordon, 1890.—Laurentian, A. (5968.)
- Lot 17, range XI. of Monmouth, Peterborough county, O.—Presented by W. H. Lockhart Gordon, 1890.—Laurentian, A. (5969.)
- Lot 4, range III. of Dudley, Peterborough county, O.—Presented by W. H. Lockhart Gordon, 1890.—Laurentian, A. (5970.)
- Lot 11, range V. of Dysart, Peterborough county, O.—Presented by W. H. Lockhart Gordon, 1890.—Laurentian, A. (5971.)
- Lot 21, range XI. of Harcourt, Peterborough county, O.—Presented by W. H. Lockhart Gordon, 1890.—Laurentian, A. (5972.)
   Lot 4, range VI. of Ferris, district of Nipissing, O.—Presented by
- Lot 4, range VI. of Ferris, district of Nipissing, O.—Presented by J. McCord, 1887.—Laurentian, A. (5452.)
- North side of Eabamet Lake, Albany River, Severn district.—Coll., R. Bell, 1886. (5358.)

Specimens of apatite from some of the more important deposits are shown in upright wing-case 27.

# MINERAL ASSOCIATIONS OF APATITE.

Apatite with fluorite, felspar and calcite.—Augmentation of Grenville, Argenteuil county, Q.—Laurentian, A. (1900.)

Scapolite.—Lot 3, range III. of the Augmentation of Grenville, Argenteuil county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (1842.)

Apatite and pyroxene.—Lot 18, range XII. of Buckingham, Ottawa county, Q.
—Coll., B. J. Harrington, 1878.—Laurentian, A. (1838.)

calcite and smoky quartz.—Lot 18, range XII. of Buckingham,
 Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1862.)

Calcite.—Lot 18, range XII. of Buckingham, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1863.)

Apatite, graphite and calcite.—Lot 21, range VII. of Buckingham, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1864.)

and pyrite.—Lot 18, range XII. of Buckingham, Ottawa county, Q.
 —Coll., B. J. Harrington, 1878.—Laurentian, A. (1872.)

Pyroxene, calcite and apatite.—Lot 18, range XII. of Buckingham, Ottawa county, Q.—Coll., B. J. Harrington, 1878. (1873.)

Sphalerite, calcite and apatite.—Emerald mine, lot 19, range XII. of Buckingham, Ottawa county, Q.—Coll., J. F. Torrance, 1883.—Laurentian, A. (3700.)

Calcite with chalcopyrite.—Lot 17, range VI. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1866.)

Apatite and calcite.—Lot 7, range VII. of Templeton, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (1897.)

and scapolite.—Lot 7, range VII. of Templeton, Ottawa county, Q.
 —Coll., C. W. Willimott, 1882.—Laurentian, A. (3762.)

Table-case 36.

Table-case 36.—

- Pyroxene.—Lot 15, range VIII. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1834.)
- Apatite and mica.—Lot 15, range VIII. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1835.)
  - calcite and mica.—Lot 15, range VIII. of Templeton, Ottawa county,
     Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1839.)
- Pyroxene.—Lot 15, range VIII. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1841.)
- Mica in calcite.—Lot 15, range VIII. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1856.)
- Calcite with mica.—Lot 8, range IX. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1861.)
- Quartz, calcite and apatite.—Lot 17, range IX. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1840.)
  - calcite, apatite and chalcopyrite.—Lot 17, range IX. of Templeton,
    Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1867.)
- Hornblende, scapolite, pyrite, calcite and tourmaline.—Jackson Rae mine, lot 9, range X. of Templeton, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3763.)
- Pyrite, apatite and calcite.—Jackson Rae mine, lot 9, range X. of Templeton, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3764.)
- Pyroxene, scapolite, apatite and pyrite. Lot 9, range X. of Templeton, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3767.)
- Apatite and mica.—McLaurin's mine, lot 11, range IX. of Templeton, Ottawa county, Q.—Coll., A. R. C. Selwyn, 1882.—Laurentian, A. (1848.)
- Pyroxene, apatite and mica.—McLaurin's mine, lot 11, range XI. of Templeton, Ottawa county, Q.—Coll., A. R. C. Selwyn, 1882.—Laurentian, A. (3768.)
- Apatite and mica.—Lot 12, range XI. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1831.)
- Orthoclase, with tourmaline and actinolite.—Lot 15, range XI. of Templeton, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3765.)
  - Lot 12, range XII. of Templeton, Ottawa county, Q.—Coll., B. J.
     Harrington, 1878.—Laurentian, A. (1850.)
- Apatite and calcite.—Lot 12, range XII. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1860.)
- Scapolite and pyroxene.—Lot 14, range XII. of Templeton, Ottawa county, Q. Coll., B. J. Harrington, 1878.—Laurentian, A. (1836.)
- Pyroxene.—Lot 16, range XII. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1858.)
- Wilsonite.—Lot 23, range XII. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1849.)
- Orthoclase, pyroxene, quartz and apatite.—Lot 11, range XIII. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1844.)
- Titanite and pyroxene.—Lot 23, range XIII. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1851.)
- Pyroxene, prehnite and apatite.—Lot 23, range XIII. of Templeton, Ottawa county, Q.—Presented by J. G. Miller, 1878.—Laurentian, A. (3766.)
- Apatite, titanite and pyroxene.—Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1843.)

Mica (phlogopite).—Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian. (1845.)

Table-case 36.—

Pyroxene with chabazite.—Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1847.)

Hornblende, apatite and mica.—Templeton, Ottawa county, Q.—Coll., B. J.

Hornblende, apatite and mica.—Templeton, Ottawa county, Q.- Coll., B. J. Harrington, 1878.—Laurentian, A. (1854.)

Wilsonite, pyroxene and apatite.—Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1859.)

 $\begin{array}{c} \textbf{Mica} \ (\text{phlogopite}). \\ -\text{Templeton, Ottawa county, } Q. \\ -\text{Coll., B. J. Harrington, } \\ 1878. \\ -\text{Laurentian, A.} \end{array} \ (1868.)$ 

Hornblende.—Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.— Laurentian, A. (1870.)

Calcite and pyroxene.—Little Rapids, Portland East, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1874.)

with apatite.—Little Rapids, Portland East, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1879.)

Orthoclase with pyroxene and apatite.—Little Rapids, Portland East, Ottawa county, Q.—Coll., B. J. Haraington, 1878.—Laurentian, A. (1880.)

Pyroxene with apatite and calcite.—Little Rapids, Portland East, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1886.)

Little Rapids, Portland East, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1887.)

Orthoclase with titanite and pyroxene. Watt's mine, lot 6, range I. of Portland East, Ottawa county, Q.—Coll., B. J. Harrington, 1878.
—Laurentian, A. (1857.)

Pyroxene with apatite.—Watt's mine, lot 6, range I. of Portland East, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1878.)

Apatite and mica.—Watt's mine, lot 6, range I. of Portland East, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1881.)

— with calcite.—Watt's mine, lot 6, range I. of Portland East, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1883.)

— and pyroxene.—Watt's mine, lot 6, range I. of Portland East, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1884.)

Pyroxene and calcite.—Lot 8, range I. of Portland East, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (1882.)

Apatite, pyroxene, chabazite, stilbite and mica.—Lot 17, range VII. of Portland East, Ottawa county, Q.—Coll., J. F. Torrance, 1883.

Laurentian, A. (3724.)

Tourmaline, pyroxene and calcite.—Lot 17, range VII. of Portland East, Ottawa county, Q.—Coll., J. F. Torrance, 1883.—Laurentian, A. (3727.)

Calcite with mica.—Lot 26, range VIII. of Portland East, Ottawa county, Q.—Coll., J. F. Torrance, 1883.—Laurentian, A. (3728.)

Scapolite, pyroxene, apatite and stilbite.—Lot 27, range VIII. of Portland East, Ottawa county, Q.—Coll., J. F. Torrance, 1883.—Laurentian, A. (3722.)

Pyroxene, with stilbite, aparite and mica.—Lot 27, range VIII. of Portland East, Ottawa county, Q.—Coll., J. F. Torrance, 1883.— Laurentian, A. (3723.)

Upright table-case 27.

Upright table-case 27.—

Calcite with apatite and chabazite,—Crown Hill, lot 27, range IX. of Portland East, Ottawa county, Q.—Coll., J. F. Torrance, 1883.—Laurentian, A. (3701.)

Chabazite, pyroxene and apatite.—Crown Hill, lot 27, range IX. of Portland East, Ottawa county, Q.—Coll., J. F. Torrance, 1883.—Laurentian, A. (3721.)

Apatite, pyroxene and mica.—Lot 17, range I. of Portland West, Ottawa county, Q.—Coll., H. G. Vennor, 1873.—Laurentian, A. (1876.)

with mica.—Lot 17, range I. of Portland West, Ottawa county, Q.
 —Coll., H. G. Vennor, 1873.—Laurentian, A. (1877.)

Pyroxene with chabazite.—Lot 19, range IV. of Portland West, Ottawa county, Q.—Presented by J. G. Miller, 1878.—Laurentian, A. (3699.)

Apatite, fluorite and pyrite.—Preston mine, Portland West, Ottawa county, Q.
—Presented by J. G. Miller, 1878.—Laurentian, A. (3772.)

Pyroxene, apatite and zircon.—High Rock mine, lot 6, range VII. of Portland West, Ottawa county, Q.—Coll., C. W. Willimott, 1889.—Laurentian, A. (1889.)

Titanite and pyroxene.—Lyon's mine, Hull, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3782.)

Tourmaline, with hornblende and apatite.—Lot 10, range XIV. of Hull, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (1865.)

Pyroxene.—Moore's mine, lot 12, range XVI. of Hull, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3769.)

Titanite, pyroxene and orthoclase.—Moore's mine, lot 12, range XVI. of Hull, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3781.)

Pyrite, scapolite and apatite.—Haldane's mine, lot 12, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3691.)

Epidote, hornblende, pyrite and apatite.—Haldane's mine, lot 12, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3692.)

Apatite and pyrite.—Haldane's mine, lot 12, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3770.)

Scapolite and pyrite.—Haldane's mine, lot 12, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1883.—Laurentian, A. (3704.)

Garnet with calcite and idocrase.—Lot 14, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1883.—Laurentian, A. (3698.)

Calcite with idocrase and apatite.—Lot 14, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1883.—Laurentian, A. (4842.)

Apatite with tourmaline and pyroxene.—Lot 14, range I. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3773.)

Pyroxene and apatite.—Wilson's mine, lot 17, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3776.)

Calcite with apatite.—Moore's mine, lot 18, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (1875.)

Garnet, epidote and pyroxene.—Moore's mine, lot 18, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3726.) Upright table-case 27.—
Continued.

- Apatite and pyroxene.—Moore's mine, lot 18, range II. of Wakefield, Ottawa county. Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3759.)
- Scapolite and pyroxene.—Moore's mine, lot 18, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3774.)
- Apatite, mica and calcite.—Moore's mine, lot 18, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3775.)
- Pyroxene and calcite.—Moore's mine, lot 18, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A.
  - calcite, apatite and mica.—Moore's mine, lot 18, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3779.)
- Apatite in quartz.—Moore's mine, lot 18, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (3780)
  - with calcite.—Moore's mine, lot 18, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (4824.)
  - mica and calcite.—Moore's mine, lot 18, range II. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882.—Laurentian, A. (4844.)
  - and pyroxene.—Lot 24, range IV. of Wakefield, Ottawa county, Q.
     —Coll., C. W. Willimott, 1883.—Laurentian, A. (3697.)
  - hornblende and mica.—Lot 24, range IV. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1883.—Laurentian, A. (3706.)
  - with pyroxene.—Lot 24, range IV. of Wakefield, Ottawa county, Q.
     —Coll., C. W. Willimott, 1883.—Laurentian, A. (3718.)

Gneiss with apatite.—Lot 22, range V. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1883.—Laurentian, A. (3696.)

- Pyroxene, scapolite and apatite.—McFarlane's mine, lot?, range VII. of Wakefield, Ottawa county, Q.—Coll., C. W. Willimott, 1882.
  —Laurentian, A. (3777.)
- —Laurentian, A. (3777.)

  Magnetite, apatite and orthoclase.—North-west half of lot 20, range II. of Huntley, Carleton county, O.—Coll., C. W. Willimott, 1888.

  —Laurentian, A. (5664.)
- Apatite in calcite.—North-west half of lot 20, range II. of Huntley, Carleton county, O.—Coll., C. W. Willimott, 1888.—Laurentian, A. (5665.)
- Calcite, with apatite and chalcopyrite.—Lot 4, range I. of North Burgess, Lanark county, O.—Coll., H. G. Vennor, 1871.—Laurentian, A. (1893.)
- Apatite with mica.—North Burgess, Lanark county, O.—Coll., H. G. Vennor, 1871.—Laurentian, A. (1894.)
- Mica with apatite.—Adams' mine, lot 6, range VIII. of North Burgess, Lanark county, O.—Coll., C. W. Willimott, 1879.—Laurentian, A. (1871.)
- Calcite and apatite.—Adams' mine, lot 6, range VIII. of North Burgess, Lanark county, O.—Coll., C. W. Willimott, 1879.—Laurentian, A. (1888.)

Upright table-case 28.

Upright table-case 28.—Continued.

- Quartz, calcite and apatite.—Adams' mine, lot 6, range VIII. of North Burgess, Lanark county, O.—Coll., C. W. Willimott, 1879.—Laurentian, A. (1892.)
- Hematite with apatite and mica.—Lot 12, range VII. of North Burgess, Lanark county, O.—Coll., H. G. Vennor, 1872.—Laurentian, A. (1895.)
- Calcite, apatite, mica and chalcopyrite.—Lot 26, range VIII. of North Elmsley, Larark county, O.—Coll., H. G. Vennor, 1875.—Laurentian, A. (1896.)
- Apatite and calcite.—Near the Foley mine, lot 11, range VIII. of Bathurst,
  Lanark county, O.—Coll., B. J. Harrington, 1878.—Laurentian. A. (1898.)
- Calcite with apatite and fluorite.—Lot 1, range VII. of Ross, Renfrew county, O.—Laurentian, A. (1899.)
- Scapolite, pyroxene and fluorite.—Lot 13, range VI. of Ross, Renfrew county, O.—Laurentian, A. (3725.)
- Hornblende, with zircon, apatite and calcite.—Lot 31, range X. of Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1883.—Laurentian, A. (1415.)
- Apatite, calcite and hornblende.—Lot 31, range XI. of Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1883.—Laurentian, A. (3693.)
- Scapolite, with apatite, titanite and pyroxene.—Turner's Island, Lake Clear, Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1883.—Laurentian, A. (3694.)
- Mica and pyroxene.—Lot 32, range XII. of Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1883.—Laurentian, A. (3709.)
- Apatite in calcite.—Turner's Island, Lake Clear, Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1883.—Laurentian, A. (3717.)
  - with pyroxene.—Lot 31, range XI. of Sebastopol, Renfrew county,
     O.—Coll., C. W. Willimott, 1883.—Laurentian, A. (3719.)
- Titanite.—Turner's Island, Lake Clear, Sebastopol, Renfrew county, O.—Coll., C. W. Willimott, 1883.—Laurentian, A. (3720.)
- Scapolite, titanite, pyroxene and calcite.—Turner's Island, Lake Clear, Sebastopol, Renfrew county, O.—Presented by J. G. Miller, 1881.—Laurentian, A. (3783.)
- Quartz, mica and apatite.—Lot 4, range XI. of Miller, Frontenac county, O.— Presented by E. G. Powell, 1886.—Laurentian, A. (5412.)

#### X.-MINERALS EMPLOYED FOR GRINDING AND POLISHING.

Sandstones and mica slates and articles manufactured therefrom.

Upright wing-case 28.

- Grindstone.—Manufactured from a sandstone found at Clifton, parish of New Bandon, Gloucester county, N.B.—Coll., L. W. Bailey, 1875.—Carboniferous, G. (1227.)
  - manufactured from the sandstone of the Clifton Quarries, parish of New Bandon, Gloucester county, N.B.—Presented by Joseph Read & Co., 1880.—Carboniferous, G. (2579.)
  - manufactured from a sandstone found at the Bay of Chaleurs, Bonaventure county, Q.—Presented by W. L. McArthur & Co.—Carboniferous, G. (3499.)
  - manufactured from a sandstone found in the vicinity of the Allumette Rapids, Pembroke, Renfrew county, O.—Coll., W. E. Logan, 1845.—Cambro-Silurian, D 1. (691.)

Upright

# Sandstones and mica slates, etc.—Continued.

**Grindstone**—manufactured from a sandstone found at Pembroke, Renfrew county, O.—Coll., T. C. Weston, 1875.—Cambro-Silurian, D 1. (692.)

(692.) wing-case (28. - Continued. (690.)

- Rock, suitable for mill-stones.—Lot 3, range V. of Grenville, Argenteuil county, Q.—Laurentian, A. (688.)
  - suitable for mill-stones.—L'Anse à la Vieille, Port Daniel, Bonaventure county, Q.—Coll., R. Bell, 1862. (689.)
- Mica slate, suitable for whetstones.—Lot 14, range II. of Shipton, Richmond county, Q.—Pre-Cambrian, B? (661.)
  - suitable for whetstones.—Lot 2, range XI. of Potton, Brome county, Q. (685.)
- Sandstone, suitable for whetstones.—From quarry above the Monastery Brook saw-mill, Antigonish, Antigonish county, N.S.—Coll., T. C. Weston, 1886.—Carboniferous, G-M. (5416.)
  - suitable for polishing.—Dorchester, Westmoreland county, N.B.—Presented by Read, Stevenson & Co., 1875.—Carboniferous, G. (1225.)
- Whetstones.—Manufactured from a mica slate found at Massawippi Lake, lot 5, range IX. of Hatley, Stanstead county, Q.—Cambrian, C1. (680.)
  - manufactured from a mica slate found on lot 28, range VII. of Stanstead, Stanstead county, Q.—Cambrian, C 1. (682.)
  - manufactured from a mica schist found on lot 15, range I. of Stanstead, Stanstead county, Q. (683.)
  - manufactured from a mica slate found on lot 23, range VI. of Bolton, Brome county, Q.—Cambrian, Cl. (684.)
  - manufactured from a mica slate found on lot 7, range II. of Kingsey,
    Drummond county, Q. (687.)
  - manufactured from a mica slate found in the township of Ham, Wolfe county, Q.—Presented by E. Richard, Arthabaskaville, Q., 1875.—Cambrian, C 1. (1226.)
  - manufactured from a mica slate found on lot 4, range V. of Madoc, Hastings county, O.—Archean, A.B. (681.)
  - manufactured from a sandstone found at Arnprior, McNab, Renfrew county, O,—Presented by J. Bell, 1875.—Cambrian, C2. (1224.)
  - manufactured from a sandstone found on lot 24, range XI. of Nottawasaga, Sincoe county, O.—Silurian, E1. (679.)

#### Infusorial earth, silicious sands, arenaceous marl and silts,

- Infusorial earth (tripolite).—Fountain Lake, Amherst, Cumberland county, N.S.—Presented by A. Mackenzie, 1885. (5136.)
  - Merigonish, Pictou county, N.S.—Presented by A. Mackenzie, 1885. (5137.)
  - Follý Lake, Colchester county, N.S.—Presented by J. F., Torrance, 1886. (5230.)
  - Pollet River Lake, Mechanic settlement, King's county, N.B.—
     Coll., R. W. Ells, 1877. (1174.)
  - Almonte, Ramsay, Lanark county, O. (673.)
  - Valley of the Petewahwa River, about thirty-five miles from its entry into the Ottawa River, district of Nipissing, O. (676.)
  - -- Vicinity of Burrard Inlet, B.C.—Coll., G. M. Dawson, 1875. (3457.)

#### Infusorial earth, silicious sands, etc.—Continued.

Upright wing-case 28.— Continued.

- Silicious sand used in the slate factory at Danville for sharpening knives.—Lot 7, range XIV. of Shipton, Richmond county, Q. (1208.)
  - suitable for polishing.—Upper layer.—Sturgeon Cove, Pennfield,
    Charlotte county, N.B.—Presented by C.E. Boardman, 1885.
    (4900.)
  - suitable for polishing.—Lower layer.—Sturgeon Cove, Pennfield,
    Charlotte county, N.B.—Presented by C. E. Boardman, 1885.
    (4901.)
  - suitable for polishing.—Amherst Island, Magdalen Islands, Q.—
     Coll., J. Richardson, 1880. (2567.)
  - suitable for polishing.—Laval—on the right bank of the Bras, at its junction with the Montmorency River, Montmorency county,
     Q. (678.)
  - suitable for polishing.—Mount Hope, Glanford, Wentworth county,
     O. (672.)
- Arenaceous marl used for the manufacture of Bath-brick, Kincardine, Bruce county, O.—Presented by Geo. Riggins, 1875. (1133.)
- Silt.—White Mud River, Cypress Hills, district of Assiniboia, N.W.T.—Coll., R. G. McConnell, 1883.—Tertiary, L. (3611.)
  - -- From below the boulder clay and above the gravel.—Eight miles above the Forks of the Red Deer River, N.W.T.—Coll., R. G. McConnell, 1883.—Tertiary, L. (4665.)
  - Overlying boulder clay.—Crooked Creek, near Waterton Lake, district of Alberta, N.W.T.—Coll., T. C. Weston, 1883.
     (3532.)
  - Columbia River (below the second lake), B.C.—Coll., G. M. Dawson, 1883.—Post-Glacial. (5118.)

#### XI.—MINERALS OF MISCELLANEOUS APPLICATION.

- Sandstone, suitable for glass-making.—Lot 80, range II. of Hemmingford, Huntingdon county, Q.—Cambrian, C1. (754.)
  - suitable for glass-making.—Lot 151, range II. of Williamstown, Chateauguay county, Q.—Cambrian, C 1. (755.)
  - suitable for glass-making. Bishop's quarry, lot 6, range II. of Nepean, Carleton county, O.—Coll., T. C. Weston, 1875.— Cambrian, C 2. (667.)
  - suitable for glass-making.—De Cew's quarry, lot 48, range I. of
     Oneida, Haldimand county, O.—Coll., T. C. Weston, 1875.
     —Devonian, F 1. (638.)
- Sand, suitable for glass-making.—St. Joseph Island, north shore of Lake Huron, district of Algoma, O. (753.)
- Quartz, suitable for glass-making.—Villeneuve mica mine, lot 31, range I. of Villeneuve, Ottawa county, Q.—Presented by L. H. Shirley, 1886. (5275.)
- Moulding sand.—Vicinity of Radnor Forges, Batiscan, Champlain county, Q. (107.)
  - Ste. Marguerite, Cap de la Magdeleine, Champlain county, Q. (108.)
  - Lot 3, range V. of North Sherbrooke, Lanark county, O.—Coll., J. White, 1891. (945.)
  - Owen Sound, Grey county, O. (1196.)
  - Dundas, Wentworth county, O. (1197.)
- Soap clay. -Fort Edmonton, district of Alberta, N.W.T.—Coll., A. R. C. Selwyn, 1873. (1206.)

# POLISHED COLUMNS AND PEDESTALS OF LIMESTONE AND SERPENTINE MARBLES AND OF OTHER ORNAMENTAL STONES.

These occupy a position immediately in the front of some of the windows, also at either end of the central series of table-cases, and occasionally against the wall.

Column and pedestal of limestone (polished) supporting a mass (5042a) of meteoric iron. The limestone—whitish, and light bluish-grey, with light to dark greyish-black wavy markings—from the "Ottawa Valley" marble quarry, lot 15, range II. of McNab, Renfrew county, O.—Presented by R. McDonald & Son, Arnprior, 1886.—Laurentian, A., and the meteoric iron, weighing 370 lbs., was found, in 1854, on the surface of the ground in the township of Madoc, Hastings county, O. (5042.)

Block of purple copper ore (bornite).—Acton mine, lot 32, range III. of Acton, Bagot county, Q.—Cambrian, C 1. (5049.)

Column and pedestal of serpentine. Polished. Column—light and dark green, with light greenish-grey spots, and veinings of white calcite. Pedestal—light and dark green, flecked and spotted.

—Melbourne, Richmond county, Q.—Cambrian, C 1. (5059.)

- of limestone—coralline. Polished. Light to dark bluish-grey, with white, ash-grey, and brownish-yellow markings, and brownish-yellow veinings.—Dudswell, Wolfe county, Q.—Presented by the Dudswell Marble and Lime Company, 1886.—Silurian, E.3. (5143.)
- of jasper conglomerate on pedestal (5147a) of granitoid gneiss. Polished. The jasper conglomerate from Bruce Mines, Lake Huron, O.—Huronian, B., and the granitoid gneiss from the east side of Kingston Harbour, Frontenac county, O.—Laurentian, A. (5147.)
- and pedestal of limestone resting on a base (5149a) of syenite.

  Polished. The limestone—light to dark reddish-brown with white, and white, with dark grey, veinings.—From St. Joseph, Beauce county, Q.—Cambrian, C 1., and the syenite from Forsyth's or Barrow Island, River St. Lawrence, opposite Gananoque, Leeds county, O.—Laurentian, A. (5149.)
- and vase of red granite. Polished.—St. George, Charlotte county, N.B.—Presented by the Bay of Fundy Red Granite Company, 1875.—Devonian, F. (5151.)
- and pedestal of limestone resting on a base (5153a) of serpentine. Polished. The limestone—white, penetrated by crystals of greenish-grey tremolite—from Barrie, Frontenac county, O.—Laurentian, A., and the serpentine—yellowish-green, light green, and greenish-grey—from Melbourne, Richmond county, Q.—Cambrian, C 1. (5153.)
- and pedestal of serpentine. Polished. Light and dark green, with veinings of white calcite, brecciated.—Orford, Sherbrooke county, Q.—Cambrian, C 1. (5157.)
- Crystal of apatite.—Emerald mine, lot 18, range XII. of Buckingham, Ottawa county, Q.—Presented by W. A. Allan, 1886.—Laurentian, A. (5155.)

#### LARGE FRAGMENTS. ETC., OF MISCELLANEOUS MINERALS AND ROCKS.

These rest on brackets attached to the ends of the several upright wing-cases.

Block of magnetic iron ore (magnetite). - Grandison, Argenteuil county, Q .-Laurentian, A. (5159.)

- Neilson mine, west half of lot 19, range II. of Madoc, Hastings county, O.-Laurentian, A. (5161.)
- of copper pyrites (chalcopyrite). —Huntingdon mine, lot 8, range III. of Bolton, Brome county, Q.—Cambrian, C1. (5163.)

Dressed block of bituminous shale.—Albert Mines, Albert county, N.B. -Carboniferous, G 1. (5165.)

Block of chromic iron ore (chromite). - Lot 40, range II. of South Ham, Wolfe

county, Q.—Cambrian, C1. (5167.)

Group of amethyst-crystals.—Amethyst Harbour, Thunder Bay, Lake Superior, O.—Cambrian, C1. (5169.)

Crystal of scapolite.—Island D., Lake Clear, Sebastopol, Renfrew county, O.— Laurentian, A. (5171.)

Blocks of columnar basalt.—Lake Superior, O. (5174.)

Block of gypsum.—Grand River, below Cayuga, Haldimand county, O.—Presented by W. Hamilton Merritt.—Silurian, E 5. (5176.)

Crystal of apatite. -Lot 1, range XII. of Hull, Ottawa county, Q.-Presented by W. A. Allan.—Laurentian, A. (5178.)

Porphyritic boulder.—Lake Superior, O. (5180.)

Block of jasper conglomerate. -Goulais Bay, Lake Superior, O. -Coll., R. Bell, 1876.—Huronian, B. (5189.)

Concretionary nodule.—Kaministiquia River, district of Thunder Bay, O.— Cambrian, C 1. (5190.)

#### MISCELLANEOUS MINERALS AND ROCKS.

Upright wing-case 29.

- Hypersthene.—From near Hebertville, township of Labarre, Chicoutimi county, Q.—Coll., F. D. Adams, 1883.—Laurentian, A. (835.)
- Serpentine (massive and fibrous). Fenwick and Sclater's asbestus mine, one mile and a half north-west of Coleraine station, Megantic county, Q.—Coll., R. W. Ells, 1889.—Cambrian, C. (3511.)
- Quartz with albite, muscovite and spessartite.—Villeneuve mica mine, lot 31, range I. of Villeneuve, Ottawa county, Q.—Presented by L. H. Shirley, 1886.—Laurentian, A. (5280.)
- Garnetiferous granite.—From a boring on lot 11, range V. of Templeton, Ottawa county, Q.—Presented by Hector McRae, 1891.— Laurentian, A. (340.)
- Andesite.—Château Richer, Montmorency county, Q.—Coll., J. Richardson.— Laurentian, A. (2519.)
- Orthoclase with quartz. -Quetachoo, Manicouagan Bay, Saguenay county, Q.-Laurentian, A. (2524.)
- Apatite, (vein, with phlogopite).--Lot 12, range XI. of Templeton, Ottawa county, Q.—Laurentian, A. (2547.)
  - showing rounded crystals, in calcite.—Emerald mine, lot 19, range XII. of Buckingham, Ottawa county, Q.—Coll., J. F. Torrance, 1883.—Laurentian, A. (4662.)

# MISCELLANEOUS MINERALS AND ROCKS-Continued.

Apatite in pyrite, with pyroxene.—Lot 11, range V. of Templeton, Ottawa county, Q.—Presented by Hector McRae, 1891.—Laurentian, A. (2523.)

Upright wing-case 29.—

 with pyroxene.—High Rock mine, lot 5, range VII. of Portland West, Ottawa county, Q.—Coll., C. W. Willimott, 1889.— Laurentian, A. (4915.)

with pyroxene and phlogopite.—Moore's mine, lot 18, range II. of
 Wakefield, Ottawa county, Q.—Coll., C. W. Willimott,
 1882.—Laurentian, A. (3444.)

# C.-STRATIGRAPHICAL COLLECTION OF ROCKS.

Table-cases 1—23.

This collection comprises between eight and nine thousand specimens representing the Laurentian, Huronian, Cambrian, Cambro-Silurian, Silurian, Devonian, Carboniferous, Triassic, Cretaceous and Tertiary

and

systems as occurring in the Dominion.

Upright table-cases

Owing to the limited accommodation it has been found impossible to exhibit more than some three thousand of the more typical of the above specimens. These are shown in table-cases 1 to 23 and upright table-cases 1 to 18—the remainder being, for the most part, contained in the drawers under the table-cases.

The naming, labelling and arrangement of these rocks is being conducted by Mr. W. F. Ferrier. On completion of the same a separate catalogue of this collection will be issued.

Table-cases
24—33.
and
Upright
table-cases
19—24.

A systematic collection of rocks is shown in table-cases 27 to 33. A typical series of rocks from British Columbia will be found in table-cases 24 to 26, and a like series from the Rocky Mountains, as also one illustrating a section across the latter, together with another from the North-west Territory, occupy, respectively, upright table-cases 19 and 20, 21, and 22 to 24.

#### D.—SPECIMENS ILLUSTRATING STRUCTURAL AND PHENOMENAL GEOLOGY.

These exemplify—Stratification: lamination: anticlines: synclines: faults: contortions: glacial scoring: pot-holes: slickensides: dendrites: rain-prints: ripple-marks: mud-cracks: concretionary structure: weathering, etc., etc.

The following are shown in upright wing-case 29 (in part) and upright wall-cases 30, 31 and 32. Those more particularly illustrating weather-

ing occupy cases arranged over upright table-cases 2 and 3.

Banded veinstone (pyroxene and apatite).—Lot 18, range XII. of Buckingham, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (2512.)

(pyroxene and apatite).—High Rock mine, lot 5, range VII. of Portland West, Ottawa county, Q.—Coll., C. W. Willimott, 1889. -Laurentian, A. (2563.)

(calcite and hornblende). - Lot 15, range VI. of Templeton, Ottawa county, Q.-Coll., B. J. Harrington, 1878.-Laurentian, A. (2534.)

Concretionary veinstone. -Lot 19, range XII. of Templeton, Ottawa county, Q.—Coll., B. J. Harrington, 1878.—Laurentian, A. (2516.)

No. 11 pit, High Rock mine, lot 5, range VII. of Portland West, Ottawa county, Q.—Coll., C. W. Willimott, 1889.—Laurentian, A. (2564.)

Geode of calcite (nail-head spar).—Teny Cape, Hants county, N.S.—Coll., C. W. Willimott, 1883.—Carboniferous, G 1. (4814.)

Pyrite vein.—Thirty Island Lake, lot 6, range III. of Bedford, Frontenac county, O.—Coll., C. W. Willimott, 1883.—Laurentian, A. (4663.)

Limestone (weathered).—Salmon River Falls, above Bull Lake, Kennebec, Frontenac county, O.—Laurentian, A. (4802.)

Anorthosite rock showing an alteration of rude bands, differing from each other in composition or in the size of the minerals composing them.—Road between ranges V. and VI. of Wexford, Mont-calm county, Q.—Coll., F. D. Adams, 1887.—Laurentian, A. (5217.)

Gneissic rock.—On the road north of St. Donat, township of Lussier, Montcalm county, Q.—Coll., F. D. Adams, 1885.—Laurentian, A. (5218.)

Gneiss (a highly contorted band of) in crystalline limestone.—Discharge of Lac des Iles, township of Cartier, Joliette county, Q.—Coll., F. D. Adams, 1887.—Laurentian, A. (5219.)

Contorted gneiss.—Grenville, Argenteuil county, Q.—Laurentian, A. (4733.)

Dyke, cutting gneiss.—Loc. (?) (4804.)

Brecciated trap.—Lot 6, range III. of Grenville, Argenteuil county, Q.—. Laurentian, A. (2555.)

Fossiliferous limestone enclosed in trap.—Bay Chaleurs, between Little Cascapedia and Capeling Rivers, Bonaventure county, Q.— (4811.)

Trap conglomerate.—Dalhousie, Restigouche county, N.B. (4812.)

Upright wing-case 29.

#### SPECIMENS ILLUSTRATING STRUCTURAL AND PHE-NOMENAL GEOLOGY—Continued.

Upright wing-case 29.—
Continued.

Quartz conglomerate.—Kaladar, Addington county, O.—Coll., A. R. C. Selwyn, 1891. (2576.)

Conglomerate.—Two miles west of Sudbury junction, C. P. R., district of Nipissing, O.—Huronian, B. (2543.)

Hornblendic granite, with included highly altered fragments of Triassic volcanic rocks becoming incorporated with the mass.—
Tucker Point, north shore of Thurlow Island, B.C.—Coll.,
G. M. Dawson, 1885. (5383.)

Agglomerate, composed of altered amygdaloidal fragments, and in composition probably diabase.—Discovery Passage, Vancouver Island, B.C.—Coll., G. M. Dawson, 1885.—Triassic, H. (5384.)

composed of altered amygdaloidal fragments and lithologically, probably a much decomposed diabase,—Near entrance to southeast arm of Quatsino Sound, Vancouver Island, B.C.—Coll., G. M. Dawson, 1885.—Triassic, H. (5385.)

Upright wall-case 30.

Limestone showing glacial striæ.—Grandique, Arichat, Richmond county, N.S.
—Coll., A. H. Foord, 1881.—Carboniferous, & 1. (4671.)

showing glacial striæ.—Belleville, Hastings county, O.—Cambro-Silurian, D 2. (4672.)

Gneiss showing glacial striæ.—North-east of Point des Monts lighthouse, Saguenay county, Q.—Coll., J. Richardson, 1860.—Laurentian, A. (4673.)

Limestone showing glacial striæ in two directions.—From cutting below lock 2.

Beveridge's Bay, Tay Canal, near Perth, Lanark county, O.

—Presented by W. J. Morris, 1884.—Cambrian, C. (4918.)

Argillite showing slickensides.—Albion Mines, Pictou county, N.S.—Coll., E. Hartley, 1868.—Carboniferous, G. (4707.)

Slate showing slickensides—Lake St. John, Chicoutimi county, Q.—Coll., J. Richardson, 1870.—Cambro-Silurian, D 3. (4716.)

Iron and copper pyrites showing slickensides.—Crown mine, Ascot, Sherbrooke county, Q.—Presented by Mr. Leckie.—Pre-Cambrian, B? (4974.)

Slate showing slickensides.—Elgin mine, Paipoonge, district of Thunder Bay, O.
—Coll., A. R. C. Selwyn, 1887.—Cambrian, C. (5635.)

Quartz showing slickensides.—Enterprise ledge, Lowhee Creek, district of Cariboo, B.C. (5360.)

- with grooved friction surface. - Bay Chaleurs. (4713.)

Sandstone with dendrites.—Beauharnois, Beauharnois county, Q.—Coll., W. E. Logan, 1852.—Cambrian, C 1. (2529.)

Mica with dendrites.—Clarendon, Frontenac county, O.—Presented by W. Sheppard, 1883.—Laurentian, A. (4848.)

Limestone with dendrites.—Sydney, Cape Breton county, N.S.—Carboniferous, G. (4669.)

Sandstone with dendrites, Bar River, Lake Huron, O.—Coll., T. C. Weston, 1882. (4929.)

Limestone with casts of mud-cracks.—The Citadel, Quebec city, Q.—Coll., T. C. Weston, 1890. (4708.)

Sandstone exhibiting casts of mud-cracks. Beveridge's Bay, Tay Canal, near Perth, Lanark county, O.—Presented by W. J. Morris, 1884.—Cambrian, C 1. (4919.)

- showing highly relieved casts of shrinkage cracks.—Long Cove (taspé county, Q.—Coll., W. E. Logan, 1844.—Devonian, F. (4757.)

#### SPECIMENS ILLUSTRATING STRUCTURAL AND PHE-NOMENAL GEOLOGY-Continued.

Rain-prints on clay, Montreal, Hochelaga county, Q.—Coll., T. C. Weston. (4703.)

on argillite.—Adams' Mill, Maccan River, Southampton, Cumberland county, N.S.—Carboniferous, G. (4704.)

on argillite. - From the sixth cutting east of Riversdale station, Intercolonial Railway, Colchester county, N.S.-Coll., T. C. Weston, 1886. (5308.)

Clay showing lamination.—Hanover, Brant county, O.—Coll., C. W. Willimott, 1885. (5086.)

Chert showing banded structure.—Thunder Bay, Lake Superior, O.—Cambrian, C 1. (4675.)

Sandstone showing lines of bedding.—Lot 12, range IX. of Pittsburgh, Frontenac county, O.—Cambrian, C 1. (4734.)

showing lines of bedding.—L'Anse au More, Labrador.—Coll., T.C.

Weston, 1872.—Cambrian, C. (4677.)

Banded quartzite showing fault.—Pillage Bay, seigniory of Mingan, Q.—Coll., J. Richardson, 1872.—Cambrian, C 1. (4699.)

Argillite showing bedding.—Trois Pistoles, Temiscouata county, Q.—Coll., J. Richardson, 1858.—Cambrian, C. (4678.)

Slate showing planes of stratification and cleavage. —Metapedia River, Q.—Coll., W. E. Logan, 1844.—Silurian, E. (4679.)

Sandstone showing false bedding.—Section 28, township of Meredith, district of Algoma, O.—Coll., T. C. Weston, 1882. (4926.)

Quartz with striated surface.—Oldham, Halifax county, N.S.—Coll., A. R. C. Selwyn, 1870. — Cambrian, C. (4694.)

Fossiliferous limestone with impressions left by pebbles.—From the bottom of Georgian Bay, off White Cloud Island, Lake Huron, O.— Coll., R. Bell, 1859. (4696.)

Limestone marked with sharp deep angular cavities, supposed to have held lenticular crystals of calcite.—Pittsburgh, Frontenac county, O.—Coll., A. Murray, 1852.—Cambro Silurian, D. (4690.)

showing impression left on removal of a crystal of mica by weathering.—North Elmsley, Lanark county, O.—Coll., T. C. Weston.—Laurentian, A. (4701.)

**Dolomite** with hopper-shaped impression, supposed to have been formed by crystals of common salt.—From near York, Haldimand county, O.—Silurian, E 5. (4793.)

Limestone columns (crystallites).—Kingston, Frontenac county, O.—Coll., W. E. Logan, 1842.—Cambro-Silurian, D. (4685.)

Crystallites penetrating chert imbedded in limestone.—From near Port Dover, Norfolk county, O.—Devonian, F 1. (4680.)

Limestone showing unequal weathering.—Montreal, Hochelaga county, Q.— Cambro-Silurian, D. (4796.)

showing unequal weathering. - Mount Wissick (Mount Lennox), Lake Temiscouata, Temiscouata county, Q.-Coll., H. M. Ami, 1887. (5566.)

showing unequal weathering.—Crow Lake, Marmora, Hastings county, O.—Coll., H. G. Vennor.—Laurentian, A. (4676.)

showing unequal weathering.—Tudor, Hastings county, O.—H. G. Vennor.—Laurentian, A. (4695.)

Chert rock showing unequal weathering.—Cherty Point, Lake Superior, O.—Coll., W. E. Logan, 1846.—Cambrian, C. (4692.)

Dolomitic limestone nodules, in limestone—showing unequal weathering.
—Silver Mountain, district of Thunder Bay, O.—Coll., E. D. Ingall, 1886.—Cambrian, C. (5575.)

Upright wall-case 30 -Continued.

#### SPECIMENS ILLUSTRATING STRUCTURAL AND PHE-NOMENAL GEOLOGY-Continued.

Upright wall-case 30 .... Continued. Columnar limestone. -- Kettle Point, Bosanquet, Lambton county, O .- Coll. H. M. Ami. 1883.—Devonian, F 3. (4684.)

Columnar basalt.—Cape d'Or, Cumberland county, N.S.—Coll., S. Barlow. 1875.—Triassic, H. (4766.)

Limestone enclosing pebble of chert.—From bank of the Rideau River, near Archville, Carleton county, O.—Presented by G. Russell, 1883. (4709.)

Limestone conglomerate.—Road between Quisibis and Siegas Rivers, Madawaska county, N.B.—Coll., L. W. Bailey.—Silurian, E. (4682.)

Jasper conglomerate. - Michipicoten Island, Lake Superior, O. - Coll., W. E. Logan, 1846. (4810.)

Conglomerate.—Bonnechère River, Renfrew county, O.—Recent. (4681.)

Contorted shale, -Albert Mines, Albert county, N.B.-Coll., R. W. Ells, 1876.—Carboniferous, G 1. (4719.)

Beliveau, Westmoreland county, N.B.—Coll., W. McOuat, 1875.— Carboniferous, G 1. (4917.)

Contorted limestone, South side of River St. Lawrence, Gaspé county, Q .-Cambrian, C. (4735.)

Contorted quartzite.—Free claim, Renfrew, Hants county, N.S.—Coll., A. R. C. Selwyn, 1870.—Cambrian, C. (4720.)

Contorted limestone.—From point three miles above River Ste. Anne, Gaspé county, Q.—Coll., J. Richardson, 1858.—Cambrian, C3. (4722.)

One mile and a half above Marsouin River, Gaspé county, Q.-Coll., T. C. Weston, 1878.—Cambrian, C. (4737.)

Contorted chert.—New Glasgow, Terrebonne county, Q.—Coll., H. G. Vennor, 1879.—Cambro-Silurian, D. (4723.)

Contorted mica slate; -Falls of the River du Loup, Beauce county, Q.—Coll., A. R. C. Selwyn. (4736.)

Contorted gneiss.—Lot 28, range I. of McDougal, district of Parry Sound, O.

-Coll., R. Bell., 1876.—Laurentian, A. (4721.)

Contorted quartz.—Loc. ? (4744.)

Contorted quartzite.—Loc. ? (4745.)

Contorted band of quartz in limestone.—South half of lot 17, range II. of Grenville, Argenteuil county, Q.—Coll., C. W. Willimott, 1889. Laurentian, A. (4715.)

Contorted quartzite.—Grenville, Argenteuil county, Q.-Laurentian, A. (4725.)

Contorted chert rock.—Lake Mistassini, Q.—Coll., J. Leitch, 1871. (4742.)

Corrugated limestone.—Scaumenac Bay, Bonaventure county, Q.—Coll., A. H. Ford.—Devonian, F. (4724.)

Corrugated slate.—Isaac's Harbour, Guysborough county, N.S.—Coll., A. R. C. Selwyn, 1870.—Cambrian, C. (4741.)

Corrugated argillite (caused by the intersection of cleavage and bedding planes).—Oldham, Halifax county, N.S. –Coll., A. R. C. Selwyn, 1870.—Cambrian, C. (4731.)

Corrugated mica schist.—Ming's Bight, Newfoundland.—Presented by Rev. M. Harvey. (4746.)

Corrugated slate.—Eastern Townships, Q. (4689.)

Corrugated limestone.—Little Métis, Rimouski county, Q.—Coll., J. Richardson, 1878.—Cambrian, C. (4740.)

Eddy Brook, Melbourne, Richmond county, Q.—Coll., T. C. Weston. (4743.)

Upright wall-case 31.

#### SPECIMENS ILLUSTRATING STRUCTURAL AND PHE-NOMENAL GEOLOGY—Continued.

Contorted iron slate.—Sutton, Brome county, Q.—Pre-Cambrian, B? (4726.) Corrugated quartzose mica schist.—Melbourne, Richmond county, Q.—Pre-Cambrian, B? (4738.)

Upright wall-case 31.—
Continued.

Contorted chloritic schist.—Lake of the Woods, district of Rainy River, O.— Coll., A. C. Lawson, 1882.—Huronian, B. (721.)

Corrugated limestone.—Echo Lake, district of Algoma, O.—Coll., T. C. Weston, 1882.—Huronian, B. (4711.)

Limestone showing rill-marks.—Kaministiquia River, district of Thunder Bay, O.—Coll., A. Murray, 1848. (4751.)

— showing rill-marks.—Two miles above Marsouin River, Gaspé county, Q.—Coll., J. Richardson, 1858.—Cambrian, C. (4748.)

Sandstone showing rill-marks.—From cove below Grande Coupe, Gaspé county, Q. (4749.)

showing rill-marks.—Island of Orleans, River St. Lawrence, Q.—Coll., T. C. Weston, 1870.—Cambrian, C. (4730, 4752.)

showing ripple-marks.—Beauharnois, Beauharnois county, Q.—Coll.,
 J. Richardson, 1859.—Cambrian, C. (4702.)

— showing ripple-marks.—Long Cove, Gaspé county, Q.—Coll., W. E. Logan, 1844.—Devonian, F. (4750.)

- showing ripple-marks.—Upper Lake, Thessalon River, district of Algoma, O.—Coll., A. Murray, 1848. (4727.)

Limestone with wrinkled surface.—From the Citadel, Quebec City, Q.—Coll., T. C. Weston, 1890. (4706.)

Geyser pipe.—Three Rivers, St. Maurice county, Q. (4747.)

Concretionary limestone.—From near New Glasgow, Pictou county, N.S.—Coll., W. E. Logan, 1868.—Carboniferous, G. (4753.)

Small's lot, Little Harbour, Pictou county, N.S.—Coll., W. E. Logan, 1868.—Carboniferous, G. (4756.)

Concretionary sandstone.—Woodworth Cove, King's county, N.S.—Triassic, H. (4760.)

Concretionary argillite.—Albert Mines, Albert county, N.B.—Coll., R. W. Ells, 1876.—Carboniferous, G l. (4776.)

Concretionary trap.—From 550 yards west of the lighthouse, Point Prim, Digby Gut, Digby county, N.S.—Coll., Prof. How, 1862. (4787.)

Concretionary markings in slate.—Torbay Road, a mile and a quarter from St. John's, St. John's county, Q.—Coll., T. C. Weston. (4774.)

Concretionary sandstone.—Abittibi River, district of Algoma, O.—Coll., A. S. Cochrane, 1877.—Silurian, E. (4765.)

Spheroidal concretionary diorite.—Small island west of Midsummer Island, Queen Charlotte Sound, B.C.—Coll., G. M. Dawson, 1885. (5417.)

Spheroidal concretion (radiated columnar limestone).—Kettle Point, Bosanquet, Lambton county, O.—Devonian, F 3. (4809.)

Concretionary quartzite. —Point near White Bear Hills, opposite Long Island, Hudson Bay.—Coll., R. Bell, 1877.—Cambrian, C. (4769.)

-- Teska Harbour, seventeen miles south-west of Great Whale River, Hudson Bay.—Coll., R. Bell, 1877.—Cambrian, C I. (4770.)

Davieau's Island, Richmond Gulf (sixty miles north of inlet), Hudson Bay.—Coll., R. Bell, 1877.—Cambrian, C 1. (4772.)

Quartzite concretions. -South side of Little Whale River, Hudson Bay.—Coll., R. Bell, 1877.—Cambrian, C 1. (4768.)

Limestone concretions in trap.—Long Island, south-west of Little Whale River, Hudson Bay.—Coll., R. Bell, 1877. (4797.)

Upright

wall-case

32.

#### ILLUSTRATING STRUCTURAL AND PHE-SPECIMENS NOMENAL GEOLOGY-Continued.

Upright wall-case 32. --Continued. Nodular concretion of iron pyrites.—Mouth of Nelson River, Hudson Bay.—Coll., R. Bell, 1879.—Recent. (4794.)

Clay concretions.—Apple Tree Point, Lake Champlain.—Coll., T. C. Weston. (4785.)

From the beach at Kingston, Frontenac county, O.—Presented by W. G. Kidd, 1888. (5672.)

Concretionary trap,-Spider Island, Lake Huron, O.-Coll., T. C. Weston, 1882. (4783.)

Concretionary limestone in amygdaloid.—Lake Superior, O.—Coll., W. E. Logan, 1846.—Cambrian, C. (4779.)

Concretionary nodule with inclusions of iron pyrites.—Beaver mine, district of Thunder Bay, O.—Coll., A. R. C. Selwyn, 1888. (5720.)

Concretionary limestone (magnesian).—From near Hector, Hector Pass, Rocky

Mountains, B.C. (5449.)

Concretionary nodules from the limestone beds.—Cat Point, Lake Winnipeg, Manitoba.—Coll., T. C. Weston, 1884.—Cambro-Silurian, D. (4885.)

from the limestone beds.—Kinnow Bay, Lake Winnipeg, Manitoba.
—Coll., T. C. Weston, 1884.—Cambro-Silurian, D. (4886.)

from the limestone beds.--Bonus Island, Lake Winnipeg, Manitoba. -Coll., T. C. Weston, 1884.—Cambro-Silurian, D. (4887.)

Limestone concretions from the Miocene conglomerate.—Swift Current, district of Assiniboia, N.W.T.—Coll., T. C. Weston. (4888.)

Concretionary nodules from the Miocene conglomerate.—Swift Current, district of Assiniboia, N.W.T.—Coll., T. C. Weston, 1884. (4889.)

Clay iron-stone nodules.—Gaspé Bay, Gaspé county, Q.—Coll., W. E. Logan, 1844. (4777.)

Swan River, Manitoba.—Coll., S. J. Dawson, 1874. (4786.)

South Joggins, Cumberland county, N.S.—Coll., T. C. Weston, 1882.—Carboniferous, G. (4791.)

Limestone concretions.—Half a mile west of White Mud River, near the Fort Walsh trail, district of Assiniboia, N.W.T.—Coll., T. C. Weston, 1884. (4890.)

Clay nodule enclosing a fossil-Mallotus villosus. - Green's Creek, Gloucester, Carleton county, O .- Tertiary, L. (4778.)

Clay nodules.—Green's Creek, Gloucester, Carleton county, O.—Presented by James Fletcher, 1884. (5328.)

Green's Creek, Gloucester, Carleton county, O.—Presented by Bro. Matthias, 1886. (4884.)

Goulais River, district of Algoma, O.—Coll., R. Bell, 1875. (4780.)

Two miles east of Little Whale River, Hudson Bay.—Coll., R. Bell, 1877. (4781.)

About two miles up Little Whale River, Hudson Bay.-Coll., R. Bell, 1877. (4782.)

Victoria, Vancouver Island, B.C.—Coll., J. Richardson, 1872. (4798.)

Sandstone nodule enclosing a fossil—Desmoceras Beudanti, Brongniart (Sp.) Cumshewa Inlet, Queen Charlotte Islands, B.C.—Coll., G. M. Dawson, 1878.—Cretaceous, K. (4790.)

Sandstone nodules.—Bank of the Rideau Canal, nine miles east of Kingston, Frontenac county, O.--Coll., A. R. C. Selwyn, 1888.—Cambrian, C 1. (5567.)

Limestone showing cone-in-cone structure.—South Joggins, Cumberland county, N.S.-Coll., T. C. Weston, 1882.-Carboniferous, G. (5046.)

#### SPECIMENS ILLUSTRATING STRUCTURAL AND PHE-NOMENAL GEOLOGY—Continued.

**Trachyte** showing flow structure.—Masset Inlet, Queen Charlotte Islands, B. C.—Coll., G. M. Dawson, 1878. (4759.)

Quartz geodes from the Tertiary basalts.—East end of Kamloops Lake, B.C.—Coll., G. M. Dawson, 1877. (5550.)

Mammillary quartz.—Spencer Island, Cumberland county, N.S.—Coll., C. W. Willimott, 1888.—Triassic, H. (5666.)

Stalagmite from the Acadia coal-pit. Pictou county, N.S.—Presented by H. S. Poole, Stellarton, N.S. (3514.)

Eroded boulder.—Off Michipicoten Island, Lake Superior, O.—Coll., R. Bell, 1876. (4762.)

Waterworn pebble with "pot-hole."—British Columbia.—Coll., J. Richardson. (4773.)

Hematitic deposit of Lacustrine formation. - Nova Scotia. (4784.)

Limestone slab with concentric markings.—Lake Winnipeg, Manitoba.—Coll., R. Bell.—Cambro-Silurian, D. (4763.)

# SPECIMENS OF LAURENTIAN ROCKS IN WHICH DETAILS OF STRUCTURE ARE RENDERED APPARENT BY WEATHERING.

Of these, Nos. 5206--5216 are arranged over upright table cases 1, 2 and 3, and Nos. 5217, 5218 and 5219 are shown in upright wingcase 29.

Laurentian limestone with inclusions of gneissic rock. The latter are usually much elongated in shape, and often considerably contorted, but being approximately parallel to one another, give to the whole a sort of flow structure. Loc.—Island in Lac Ouareau, township of Lussier, Montcalm county, Q.—Coll., F. D. Adams. (5206.)

Foliated anorthosite rock. Loc.—Rivière aux Porcupine, Chicoutimi county, Q.—Coll., F. D. Adams. (5207.)

Foliated anorthosite rock. Loc.—Lot 34, range I. of the township of Bourget, Chicoutimi county, Q.—Coll., F. D. Adams. (5208.)

Massive anorthosite rock. Loc.—Shipshaw River, range IX. of the township of Simard, Chicoutimi county, Q.—Coll., F. D. Adams. (5209.)

Porphyritic anorthosite rock. Loc.—Bank of North River, range X. of the township of Abercrombie, Terrebonne county, Q.—Coll., F. D. Adams. (5210.)

Foliated orthoclase gneiss. Loc.—East shore of Lake Archambault, township of Lussier, Montcalm county, Q.—Coll., F. D. Adams. (5211.)

White anorthosite rock with imbedded masses of a plagioclase felspar, angular in shape and generally elongated in one direction. The presence of a few strings of iron-ore or lime-magnesia silicates, coinciding in direction with the longer axis of the plagioclase masses, gives to the rock, in places, a somewhat banded appearance. Loc.—Rivière aux Sables, four miles from Lake Kenogami, township of Jonquière, Chicoutimi county, Q.—Coll., F. D. Adams. (5212.)

Augen gneiss (eye gneiss).—The "Augen" or eyes consist of orthoclase felspar, bounded in every case by a narrow zone of plagioclase (?) felspar. Loc.—Little Peribonka River, forty-seven miles from Peribonka River, Chicoutimi county, Q.—Coll., F. D. Adams. (5213.)

Upright
wall-case
32.—
Continued.

# SPECIMENS OF LAURENTIAN ROCKS IN WHICH DETAILS OF STRUCTURE ARE RENDERED APPARENT BY WEATHERING—Continued.

Coarse grained, massive, anorthosite rock, occurs associated with the medium grained variety (No. 5215). Loc.—Bank of Shipshaw River, range IX. of the township of Simard, Chicoutimi county, Q.

-Coll., F. D. Adams. (5214.)

Medium grained, massive, anorthosite rock, occurs associated with the coarser variety (No. 5214). Loc.—Bank of Shipshaw River, township of Simard, Chicoutimi county, Q.—Coll., F. D. Adams. (5215.)

- Anorthosite rock.—Shows the light colour and general characters assumed by the rock of the great anorthosite area of Morin, Wexford, Beresford and the neighbouring townships, near its contact with the Laurentian gneiss on its eastern and southern sides. Loc.—Lot 50, range 1II. of Wexford, Montcalm county, Q.—Coll., F. D. Adams. (5216.)
- Anorthosite rock showing an alteration of rude bands, differing from each other in composition, or in the size of the minerals composing them. Loc.—Road running between ranges V. and VI., township of Wexford, Montcalm county, Q.—Coll., F. D. Adams, 1884. (5217.)
- Gneissic rock. Loc.—On road north of St. Donat, township of Lussier, Mont-calm county, Q.—Coll., F. D. Adams, 1885. (5218,)
- Gneiss, a highly contorted band of, in crystalline limestone. Loc.—Discharge of
  Lac des Iles, about one mile north-west of the rear line of
  the township of Cartier, Joliette county, Q.—Coll., F. D.
  Adams, 1887. (5219.)

## INDEX TO,

## AND SYNOPSIS OF CONTENTS OF, CASES.

#### UPRIGHT WALL AND WING-CASES.

(Of these Nos. 1, 2, 11, 14, 15, 30, 31 and 32 are wall-cases, and the remainder wing-cases.)

		Page.
Case.		37
1.	Gold and silver ores	49
2.	Silver and lead ores.	10
3.	Antimony, arsenic, chromium, molybdenum, nickel, sulphur and	54
	zinc ores	62
4.	Manganese and iron ores	64
5.	Iron ores	83
6.	Copper ores	85
7.	do do	93
8.	Fossil fuel, of Cretaceous and Laramie age	100
9.	do do do do	103
10.	do do of the Carboniferous system	
11.	Petroleum, mineral tar, bitumen, etc	109
12.	Roofing slates, slate flooring tiles, school slates	
13.	Limestones (building stones).	107
14.	do dolomites, sandstones (building stones)	
15.	Sandstones, granites, gneisses, syenites, etc. (building stones)	122
16.	Brick-clays and bricks, common and ornamental.	
17.	do do do do and drain tiles	
18.	Raw lime and cement stones and common and hydraulic limes	
19.	Gypsum, anhydrite and plaster-of-Paris.	131
20.	Iron ochres, barytes, steatite and prepared mineral pigments	134
21.	Graphite, and articles manufactured therefrom	100
22.	Asbestus (the variety of serpentine commercially so-called) soap-	138
	stone or steatite, potstone or chlorite, fire-clay	140
23.	Micas—Biotite, muscovite and phlogopite	145
24.	Brines, salt, and mineral waters.	
25.	Minerals applicable to the fine arts and jewellery	14
26.	do do do do do	
27.	Apatite, phosphatic rock, gypsum and marls	. 100

# INDEX TO, AND SYNOPSIS OF CONTENTS OF, CASES-Con.

#### UPRIGHT WALL AND WING-CASES-Continued.

Case. 28. 29. 30. 31. 32.	Sandstones and mica slates (and articles manufactured therefrom), infusorial earth, silicious sands, arenaceous marls and silts—for grinding and polishing purposes. Sandstone and sand for glass-making, moulding sand, and soap clay used as a detergent.  Miscellaneous minerals and rocks, and specimens illustrating structural and phenomenal geology.  Specimens illustrating structural and phenomenal geology.  do do do do do do  do do do do	160
	TABLE-CASES.	
1-23. 24-26. 27-33. 34. 35. 36. 37. 38. 39-41. 42-46. 47. 48. 49-63. 69.	Stratigraphical collection of Canadian rocks.  Typical series of rocks from British Columbia.  Systematic collection of rocks.  Apatite, specimens illustrating distribution of (in part), and mineral associations of.  Apatite, mineral associations of.  Graphite, specimens illustrating distribution of, and mineral associations of.  Asbestus (chrysotile), specimens illustrating distribution of.  Copper ores, specimens illustrating distribution of.  Sold and silver ores from British Columbia.  do do do do  Systematic collection of minerals.  Minerals applicable to the fine arts and jewellery, cut and polished specimens of.  Gold and silver ores from British Columbia—continued from case 48.  Silver ores from the Thunder Bay mining region, Ont	
	SEPARATE TABLE-CASES.	
A. B. C.	A large specimen of associated pyroxene, hornblende, apatite, calcite and biotite	34 34 34
D.	A large specimen of associated albite, tourmaline, muscovite and quartz	34
E. F.	A large specimen of biotite	34 34

# INDEX TO, AND SYNOPSIS OF CONTENTS OF, CASES—Con.

#### UPRIGHT TABLE-CASES.

(That is to say the cases immediately at the back of, and vertical to, the table-cases.)

Case.		Page.
1-18.	Stratigraphical collection of Canadian rocks	166
19.	Typical series of rocks—Rocky Mountains	166
20.	do do do do	
21.	Typical series of rocks to illustrate section across the Rocky	
	Mountains	166
22-24.	·Typical series of rocks—North-west Territory	166
25.	Ores of antimony, arsenic, bismuth and nickel (in part), specimens	
	illustrating the distribution of	57
26.	Ores of nickel (continued from case 25) and zinc, specimens illustrat-	
	ing the distribution of	58
27.	Apatite, mineral associations of	157
28.	do do	159
29.	Graphite, specimens illustrating the distribution of	136
30.	Asbestus (chrysotile) and articles manufactured from it	140
31.	Ores of chromium, manganese, molybdenum and sulphur, specimens	
	illustrating the distribution of	60
32.	Silver-lead and lead ore, specimens illustrating the distribution of.	52
33.	Ilmenite or titanic iron and iron sands, specimens illustrating the	
	distribution of	78
34-36.	Hematite, limonite and magnetite, mineral associations of	
37-44.	Minerals pertaining to systematic collection of minerals3	0 to 3

## INDEX TO NUMBERS ON SPECIMENS.

Note.—Specimens having a higher number than 6549, are additions since the completion of this catalogue.

No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.
1 2 3 4 4 5 6 7 8 9 10 11 12 13 14 15 16 17 8 19 20 21 4 25 26 27 28 29 30 31 32 44 44 45 46 47 48	66 67 66 66 67 66 67 66 67 66 67 66 67 66 64 64 64 64 64 66 64 66 64 66 64 64	49 50 51 52 53 54 55 56 61 62 63 64 66 67 67 77 78 79 80 81 82 83 84 89 90 91 92 93 94 95	44 44 44 44 44 44 45 45 45 62 62 62 62 62 62 62 62 62 62 62 62 62	96 97 98 99 100 102 103 104 105 106 107 108 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 130 131 132 133 134 135 136 137 138 139 140 141 141 141 141 141 141 141	63 65 66 66 73 65 67 63 66 64 67 63 66 63 63 62 63 63 65 63 65 63 65 63 65 66 63 65 66 63 65 65 66 63 65 65 65 67 67 68 68 68 68 68 68 68 68 68 68 68 68 68	144 145 146 148 149 150 151 152 153 154 155 156 157 158 169 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 188 188 188 188 188 188	666 83 45 63 71 64 65 45 45 45 45 45 45 45 45 45 45 45 45 45	189 190 191 192 193 194 195 196 197 198 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232	50 51 51 51 48 48 52 63 63 63 65 65 65 65 84 85 84 85 84 85 84 85 84 85 85 84 85 85 86 86 86 87 88 88 88 88 88 88 88 88 88	252 253 254 255 256 257 258 259 260 261 262	45 45 46 85 46 85 21 84 23 46 46 46 85 84 46 46 46 46 46 46 46 46 46 4

INDEX TO NUMBERS ON SPECIMENS.—Continued.

No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.
281 282 283 284 285 286 287 288 289 291 292 293 294 295 296 298 299 300 301 303 311 312 313 314 315 320 321 322 323 324 325 326 327 328 329 320 321 322 323 324 325 326 327 328 329 320 321 322 323 324 325 326 327 327 328 329 320 321 321 322 323 324 325 326 327 327 328 329 320 321 321 322 323 324 325 326 327 327 328 329 320 321 321 322 323 324 325 326 327 327 328 329 320 321 321 322 323 324 325 326 327 327 328 329 320 321 321 322 323 324 325 326 327 327 328 329 320 321 321 322 323 324 325 326 327 327 328 329 329 330 331 331 331 331 331 331 331	46 46 46 84 18 83 84 85 46 46 46 86 86 86 86 86 86 86 86 86 86 86 86 86	342 343 344 345 347 348 350 351 352 354 355 358 359 360 361 362 363 364 365 366 367 371 373 374 376 377 378 380 381 382 383 384 385 386 387 377 378 380 381 381 382 383 384 385 386 387 387 387 387 387 387 387 387	51 48 49 58 148 55 51 54 54 55 56 55 56 55 56 55 56 57 57 59 39 38 38 38 37 12 37 37 37 37 37 37 38 39 40 40 40 40 40 40 40 40 40 40 40 40 40	401 402 403 405 406 409 412 415 416 417 418 420 421 422 423 424 425 427 428 427 428 437 438 439 440 441 442 443 444 445 446 455 456 467 468 466 467	39 39 39 39 39 39 39 38 40 38 40 39 37 37 37 37 37 38 38 38 38 38 38 40 40 40 40 40 40 40 40 40 40 40 40 40	468   469   471   472   473   475   476   477   478   485   487   488   490   491   492   493   496   501   503   504   505   505   506   507   518   511   512   513   515   515   516   517   518   523   525   526   527   528   532   533   532   532	40 72 37 56 37 56 37 56 38 93 93 93 93 93 93 56 104 104 104 104 104 104 104 104 104 104	534 535 536 537 538 540 541 542 5445 5447 5449 551 5546 555 555 556 563 564 567 577 576 577 577 578 577 578 577 578 577 578 577 578 577 578 577 578 577 578 577 578 577 578 577 578 577 578 577 578 577 577	107 104 104 104 104 104 109 104 109 107 107 107 107 107 107 107 107 107 107	589 590 591 592 594 598 599 600 601 603 604 605 606 608 609 611 613 614 615 620 621 622 623 624 625 626 627 628 630 631 631 634 631 634 634 644 645 646	113 113 113 113 113 111 111 111 111 111

 $12\frac{1}{2}$ 

No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.
647 648 649 650 651 652 653 654 655 656 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 687 689 690 691 692 693 694 697 698 697 698 701 702 703 704 705 706 707	131 131 130 129 131 131 127 105 129 130 128 161 128 151 129 129 129 129 129 146 114 161 161 161 161 161 161 161 161	708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 730 731 732 734 735 736 737 738 734 745 746 747 748 749 750 751 752 753 756 757 758 760 761	132 130 133 105 106 105 105 105 105 105 105 105 105 105 117 114 131 131 131 132 132 132 132 132 132 132	762 763 764 765 766 767 768 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 789 780 781 782 783 784 785 786 787 788 789 790 801 802 803 804 805 807 808 807 808 809 810 811 812 813 814	152 152 152 153 152 114 152 152 152 152 152 152 130 130 130 130 130 131 151 114 141 151 141 141 135 141 141 135 141 141 135 141 141 135 141 141 141 135 141 141 141 141 141 141 141 141 141 14	816 817 818 819 821 823 824 825 828 830 832 834 843 844 845 846 847 848 850 851 854 855 856 857 861 862 863 864 865 867 868 867 876 877 877 877 877 877 877	139 139 139 139 139 141 146 128 146 107 145 148 145 147 146 148 105 146 148 105 146 146 146 146 146 146 147 141 141 141 141 114 114 114 114 114	881 882 883 884 885 886 887 888 890 890 891 902 903 904 905 906 907 908 909 910 911 912 913 916 917 919 921 922 923 924 925 926 927 929 931 932 933 934 935 937 938	115 115 115 115 115 115 115 115 115 115	940 941 944 945 947 948 949 950 951 953 954 955 956 958 959 961 962 963 964 965 966 968 970 971 972 973 974 975 976 978 981 982 983 984 985 987 988 989 989 999 999 999 999	119 113 119 162 152 119 151 151 151 151 151 151 151 151 151

INDEX TO NUMBERS ON SPECIMENS.—Continued.

No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.
1001 1002 1003 1004 1006 1007 1008 1009 1010 1011 1012 1013 1016 1017 1018 1019 1020 1021 1023 1024 1025 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1036 1037 1038 1039 1040 1041 1042 1043 1044 1045 1044 1045 1048 1049 1049 1049 1049 1049 1040 1041 1044 1045 1046 1047 1048 1049 1040 1041 1044 1045 1046 1047 1048 1049 1049 1040 1041 1044 1045 1048 1049 1049 1040 1041 1044 1045 1048 1049 1049 1040 1041 1041 1044 1045 1046 1047 1048 1049 1049 1040 1041 1041 1045 1046 1047 1048 1049 1040 1041 1045 1046 1047 1048 1049 1049 1040 1041 1041 1045 1046 1047 1048 1049 1040 1041 1041 1045 1046 1047 1048 1049 1049 1040 1041 1041 1045 1046 1047 1048 1049 1049 1040 1041 1041 1042 1043 1044 1045 1046 1047 1048 1049 1049 1040 1041 1041 1042 1043 1044 1045 1046 1047 1048 1049 1049 1040 1041 1041 1042 1043 1044 1045 1046 1047 1048 1049 1049 1049 1040 1041 1041 1042 1043 1044 1045 1046 1047 1048 1049 1049 1049 1049 1049 1049 1049 1049	40 40 40 40 39 39 40 40 40 40 40 40 40 40 40 40	1057 1058 1059 1060 1061 1062 1063 1064 1066 1067 1068 1070 1071 1072 1073 1074 1075 1076 1077 1078 1079 1080 1081 1082 1083 1084 1085 1086 1090 1091 1092 1093 1094 1109 1100 1101 1102 1103 1104 1105 1106 1107 1108	121 121 121 121 121 121 121 121 121 121	1111 1112 1113 1114 1115 1116 1117 1118 1119 1120 1121 1122 1123 1124 1128 1130 1131 1132 1133 1134 1135 1136 1137 1138 1139 1140 1141 1142 1143 1144 1145 1146 1167 1151 1152 1153 1154 1155 1156 1157 1158 1159 1160 1161 1162 1163 1164 1165 1166 1167 1168	122   122   122   122   122   122   122   122   122   122   122   122   122   122   122   123   124   139   162   127   123   125   126   123   126   123   126   123   127   120   110   150   108   108   108   108   108   108   108   108   109   110   107   107   107   110   107   110   107   110   107   110   107   110   107   110   107   110   107   110   107   110   107   110   107   110   107   110   107   110   107   110   107   110   107   110   107   110   107   110   107   110	1169 1170 1171 1172 1173 1174 1175 1176 1177 1178 1179 1180 1181 1182 1184 1185 1186 1187 1188 1189 1190 1191 1192 1193 1194 1195 1196 1197 1198 1199 1200 1201 1202 1203 1204 1205 1206 1207 1208 1209 1210 1211 1212 1213 1214 1215 1216 1218 1219 1221 1223 1224 1225 1226	110 110 110 150 107 109 161 110 111 111 111 111 113 113 112 113 117 128 128 128 128 128 128 128 128 128 128	1227 1228 1229 1230 1231 1232 1233 1234 1235 1236 1237 1238 1240 1241 1242 1243 1245 1246 1247 1248 1249 1250 1251 1252 1253 1254 1256 1257 1258 1259 1260 1261 1262 1263 1264 1265 1266 1267 1268 1269 1270 1271 1272 1273 1274 1275 1276 1277 1278 1277 1278 1277 1278 1277 1278 1277 1278	160   5   138   5   5   5   5   5   5   5   5   5	1284 1285 1286 1287 1288 1289 1290 1291 1292 1293 1294 1295 1296 1297 1298 1299 1300 1301 1303 1304 1305 1306 1307 1308 1311 1312 1313 1314 1315 1316 1317 1318 1317 1318 1319 1320 1321 1322 1323 1324 1325 1326 1327 1328 1329 1321 1322 1323 1324 1325 1326 1327 1328 1329 1321 1322 1323 1324 1325 1326 1327 1328 1329 1329 1329 1329 1329 1321 1322 1323 1324 1325 1326 1327 1328 1329 1331 1328 1329 1331 1332 1333 1334 1334 1335 1336 1336 1337 1338 1339 1339 1339 1339 1339 1339 1339	7 59 27 59 7 7 15 7 7 7 11 7 7 7 7 17 8 8 8 20 8 8 8 8 8 8 10 7 8 8 8 8 8 8 8 10 7 17 17 19 9 9 12 9 9 9 12 12 19 11 11 11 11 11 11 11 11 11 11 11 11

No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.
1341 1342 1345 1346 1347 1343 1350 1351 1352 1353 1354 1355 1356 1357 1363 1364 1365 1366 1367 1368 1370 1371 1374 1376 1377 1378 1379 1380 1381 1382 1384 1385 1386 1387 1388 1399 1390 1393 1394 1395 1398 1399 1400 1401 1402 1403 1404	12   12   12   12   12   12   12   12	1405 1406 1407 1408 1409 1410 1411 1412 1413 1416 1416 1417 1418 1421 1422 1423 1424 1425 1426 1427 1428 1429 1430 1431 1434 1436 1437 1438 1434 1448 1449 1450 1451 1455 1456 1457 1458 1456 1461 1462	20 16 16 16 16 16 17 17 16 16 16 16 16 16 16 17 17 17 17 17 17 17 17 17 17	1463 1464 1465 1466 1467 1468 1470 1471 1472 1473 1474 1475 1476 1477 1478 1479 1480 1481 1482 1483 1484 1485 1486 1487 1491 1492 1493 1494 1495 1503 1504 1505 1506 1511 1512 1516 1516 1516 1519 1520 1521	24 23 68 24 18 19 18 18 18 18 18 18 18 18 15 15 15 15 15 15 15 15 15 15	1522 1523 1524 1525 1526 1527 1528 1529 1530 1531 1532 1535 1535 1536 1537 1535 1536 1541 1542 1543 1544 1545 1546 1551 1551 1555 1556 1557 1558 1560 1561 1562 1563 1564 1566 1567 1568 1566 1571 1572 1573 1574 1573 1574 1575 1576 1577 1578 1579	20 22 22 22 22 22 21 20 145 21 22 22 22 22 22 22 22 21 21	1580 1581 1582 1583 1584 1586 1587 1591 1592 1593 1594 1595 1596 1597 1600 1601 1602 1603 1604 1605 1606 1607 1608 1609 1611 1612 1613 1614 1615 1616 1617 1618 1620 1621 1622 1633 1624 1623 1624 1625 1626 1627 1626 1631 1632 1632 1633 1634 1635 1636 1631 1635 1636 1631 1632 1633 1634 1635 1636 1631 1632 1633 1634 1635 1636 1636 1637 1638 1638 1638 1638 1639 1631 1632 1633 1634 1635 1636 1637 1638 1638 1638 1638 1638 1639 1639 1639 1639 1639 1639 1639 1639	24 24 24 25 24 24 24 24 25 24 24 25 24 24 25 26 26 26 26 26 26 27 27 27 27 28	1637 1638 1639 1640 1641 1642 1643 1644 1645 1646 1651 1652 1653 1654 1655 1656 1657 1658 1660 1661 1662 1663 1664 1666 1667 1678 1670 1671 1672 1678 1679 1680 1681 1682 1683 1684 1685 1688 1689 1690 1691 1692 1693	28 28 28 28 28 28 28 28 28 28 13 14 13 13 13 14 14 14 14 14 14 14 14 14 14 14 14 14

No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.
1694 1695 1696 1697 1698 1699 1701 1702 1703 1704 1705 1706 1707 1708 1710 1711 1712 1713 1714 1715 1716 1717 1718 1719 1720 1721 1722 1723 1724 1725 1727 1728 1729 1730 1731 1732 1733 1734 1735 1736 1737 1738 1739 1730 1731 1732 1733 1734 1735 1736 1737 1738 1738 1739 1730 1731 1732 1733 1734 1735 1736 1737 1738 1738 1739 1740 1741 1742 1743 1744 1745 1744 1745 1746 1747 1748 1749 1740 1741 1742 1744 1745 1746 1747 1748 1749 1740 1741 1742 1744 1745 1746 1747 1748 1749 1740 1741 1742 1744 1745 1746 1747 1748 1749 1740 1741 1742 1744 1745 1746 1747 1748 1749 1740 1741 1744 1745 1746 1747 1748 1749 1740 1741 1742 1744 1745 1746 1747 1748 1749 1740 1741 1742 1744 1745 1746 1747 1748 1749 1740 1741 1742 1743 1744 1745 1746 1747 1748 1749 1740 1741 1742 1744 1745 1746 1747 1748 1749 1744 1745 1744 1745 1746 1747 1748 1744 1745 1746 1747 1748 1744 1745 1746 1747 1748 1744 1745 1746 1747 1748 1748 1749 1744 1745 1746 1747 1748 1749 1744 1745 1746 1747 1748 1749 1749 1740 1741 1744 1745 1746 1747 1748 1749 1749 1749 1749 1749 1749 1749 1749	14   14   14   14   14   14   129   16   16   16   16   17   17   18   18   18   18   18   18	1751 1752 1753 1754 1755 1756 1757 1758 1759 1760 1762 1764 1765 1766 1767 1771 1772 1774 1775 1776 1777 1778 1780 1781 1782 1783 1784 1785 1788 1789 1780 1781 1792 1793 1794 1795 1796 1797 1798 1799 1790 1791 1792 1793 1794 1795 1796 1797 1798 1799 1790 1791 1792 1793 1794 1795 1796 1797 1798 1799 1790 1791 1792 1793 1794 1795 1796 1797 1798 1799 1790 1791 1792 1793 1794 1795 1796 1797 1798 1799 1790 1791 1792 1793 1794 1795 1796 1797 1798 1799 1800 1801 1802 1803 1804 1804 1807 1808	138 137 137 137 138 138 138 138 138 138 138 138	1809 1810 1811 1812 1813 1814 1815 1816 1817 1818 1819 1820 1822 1823 1824 1825 1826 1827 1828 1829 1830 1831 1832 1833 1834 1835 1836 1837 1848 1849 1840 1841 1842 1843 1844 1845 1846 1847 1848 1849 1850 1851 1852 1856 1857 1858 1859 1860 1861 1862	153 153 153 153 153 153 153 154 154 154 154 154 154 154 155 156 156 156 156 156 156 156 156 156	1866 1867 1868 1869 1870 1871 1872 1873 1874 1875 1876 1877 1878 1880 1881 1882 1883 1884 1885 1892 1893 1894 1893 1894 1895 1900 1901 1903 1904 1905 1906 1907 1908 1911 1912 1913 1914 1915 1916 1919 1919 1920 1921 1922 1923 1924	155 156 157 60 157 159 155 155 158 158 158 158 157 157 157 157 157 157 157 157 157 159 160 160 160 160 160 160 160 160 160 160	1925 1926 1927 1928 1929 1930 1931 1932 1933 1935 1937 1943 1944 1945 1946 1947 1949 1950 1951 1953 1954 1955 1956 1957 1958 1957 1958 1959 1960 1961 1962 1963 1966 1966 1967 1971 1972 1973 1974 1975 1979 1980 1981 1982 1983 1984	79 79 80 80 80 80 81 69 80 80 81 68 67 72 68 80 80 71 71 71 71 68 79 68 9 79 80 80 69 79 81 80 80 69 79 79 81 80 68 81 81 80 68 87 79 79 79	1985 1986 1987 1988 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2010 2011 2012 2013 2014 2015 2016 2017 2019 2020 2021 2022 2023 2024 2025 2026 2027 2026 2027 2028 2029 2030 2031 2032 2033 2034 2036 2039 2030 2031 2031 2032 2033 2034 2036 2039 2030 2031 2031 2031 2031 2032 2032 2033 2034 2036 2039 2030 2031 2031 2031 2031 2031 2031 2031	79 81 81 81 82 82 73 73 74 73 82 83 72 82 74 73 72 82 74 73 72 82 74 73 72 82 74 73 72 82 73 72 82 74 73 73 73 73 73 73 73 73 73 73 73 73 73

										,	
No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.
2042 2043 2044 2045 2046 2047 2048 2052 2053 2054 2055 2057 2058 2065 2066 2065 2066 2067 2066 2067 2066 2071 2071 2072 2073 2074 2077 2078 2079 2080 2081 2082 2083 2084 2085 2089 2090 2081 2087 2088 2089 2080 2081 2081 2081 2082 2083 2084 2085 2087 2088 2088 2089 2080 2081 2081 2081 2081 2081 2081 2081	78 78 78 78 78 78 78 75 75 75 75 76 76 76 76 77 78 77 77 78 77 77 78 77 77	2098 2099 2100 2101 2102 2103 2104 2105 2106 2107 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2139 2130 2131 2142 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2142 2143 2144 2145 215 215 216 217 217 218 218 219 219 219 219 219 219 219 219 219 219	83 76 68 68 68 70 17 68 69 71 136 80 82 79 79 79 79 79 79 79 79 77 77	2444 2445 2446 2448 2449 2450 2451 2452 2453 2455 2456 2457 2458 2461 2462 2463 2464 2463 2464 2467 2468 2467 2468 2471 2472 2473 2474 2475 2476 2471 2472 2473 2474 2478 2478 2478 2488 2489 2480 2480 2480 2480 2480 2480 2480 2480	131 132 147 134 61 133 133 133 133 133 133 133 133 133	2502 2503 2504 2505 2512 2513 2514 2516 2521 2523 2524 2523 2524 2529 2532 2534 2536 2539 2534 2536 2539 2541 2543 2541 2543 2541 2543 2541 2544 2545 2547 2548 2547 2548 2547 2548 2547 2548 2547 2548 2547 2548 2547 2548 2547 2548 2547 2548 2547 2548 2547 2548 2547 2548 2547 2548 2547 2548 2547 2548 2547 2548 2547 2548 2547 2548 2547 2558 2559 2577 2578 2577 2578 2577 2578 2577 2578 2577 2578 2577 2578 2577 2578 2577 2578 2577 2578	149 148 107 107 167 31 133 167 164 30 31 165 164 31 168 32 167 30 150 151 141 32 168 32 167 30 150 151 141 32 168 32 167 30 150 151 141 32 168 32 167 30 135 135 33 167 147 147 147 147 147 149 139 139 167 167 139 169 169 169 189 169 199 33 145 168 94 107	2579 2580 2581 2582 2583 2584 2585 2586 2587 2590 2591 2592 2593 2594 2596 2599 2600 2601 2602 2603 2604 2606 2607 2608 2609 2611 2612 2613 2614 2615 2616 2617 2618 2619 2629 2620 2621 2622 2623 2624 2623 2624 2625 2626 2627 2628 2630 2631 2632 2633 2632 2633 2632 2633 2632 2633 2632 2633 2632 2633 2632 2633 2632 2633 2632 2633 2632 2633 2632 2633 2632 2633 2632 2633 2632 2633 2633 2632 2633 2633 2632 2633 2633 2633 2633 2633 2633 2633 2633 2633 2634 2632 2633 2633	160 107 146 71 51 127 129 8 142 142 142 142 142 142 143 143 143 143 143 143 143 143	2634 2635 2636 2637 2638 2640 2641 2723 2813 3326 3411 3412 3418 3416 3418 3419 3420 3421 3423 3424 3424 3425 3424 3425 3424 3425 3424 3426 3427 3428 3428 3424 3428 3424 3425 3424 3425 3426 3427 3428 3428 3428 3428 3428 3428 3428 3428	144 144 144 144 144 144 144 188 18 16 89 90 90 90 90 90 90 90 90 90 90 90 90 90

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No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.
3454 3455 3456 3457 3458 3461 3462 3465 3465 3467 3471 3472 3473 3474 3475 3476 3477 3478 3477 3482 3482 3483 3481 3482 3483 3489 3490 3491 3495 3496 3496 3496 3496 3496 3496 3496 3496	95 99 99 161 99 95 98 98 99 97 93 94 98 98 98 98 98 98 98 98 98 100 98 101 102 101 101 101 101 101 101 101 101	3512 3513 3514 3515 3516 3517 3518 3521 3523 3524 3526 3527 3528 3526 3527 3533 3533 3533 3533 3533 3534 3533 3534 3533 3534 3535 3536 3537 3536 3537 3536 3537 3536 3537 3536 3537 3536 3537 3536 3537 3537	89 88 173 53 53 136 53 53 54 53 54 53 52 47 53 126 127 127 127 127 127 127 127 127 127 127	3570 3571 3572 3573 3576 3576 3576 3577 3578 3583 3584 3583 3584 3583 3584 3583 3584 3583 3584 3583 3583	88 88 88 88 88 88 88 88 88 88	3625 3626 3627 3628 3630 3631 3632 3633 3635 3636 3637 3641 3642 3643 3645 3645 3645 3645 3655 3655 3655	57 57 57 140 140 140 140 140 140 140 140	3680 3681 3682 3683 3684 3685 3686 3689 3690 3691 3692 3693 3694 3695 3700 3701 3702 3703 3704 3705 3706 3707 3708 3709 3711 3712 3713 3714 3715 3716 3717 3718 3717 3718 3718 3719 3720 3721 3723 3724 3723 3724 3723 3724 3723 3723	87 136 136 147 136 147 137 138 137 138 158 158 158 158 158 158 158 158 158 15	3734 3735 3736 3737 3738 3740 3741 3742 3743 3744 3745 3746 3747 3753 3751 3752 3753 3754 3755 3756 3762 3763 3761 3762 3763 3764 3763 3764 3765 3766 3767 3767 3768 3768 3769 3770 3771 3778 3778 3778 3778 3778 3778 3778	145 145 145 145 145 145 151 151 151 151

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No. Bage	No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.
4521 16 4522 16 4524 16 4525 16 4525 16 4526 22 4527 17 4528 27 4531 8 4532 19 4533 19 4535 17 4536 26 4537 19 4538 33 4539 12 4541 12 4542 12 4543 30 4544 30 4545 12 4546 10 4557 11 4548 30 4545 12 4546 10 4557 19 4558 19 4561 18 4557 19 4556 18 4557 19 4556 18 4560 19 4561 18 4560 19 4561 18 4562 26 4566 22 4566 22 4566 22 4566 22 4566 22 4566 22 4566 22 4566 22 4566 22 4566 22 4567 22 4568 25 4570 24 4571 23 4572 23 4573 18 4574 31 4576 19 4577 31 4576 19 4577 31 4577 31	4580 4581 4582 4583 4584 4585 4586 4587 4598 4599 4591 4592 4593 4594 4595 4600 4601 4605 4606 4607 4608 4609 4611 4612 4613 4614 4617 4618 4617 4619 4621 4623 4624 4625 4629 4631 4632 4633 4634 4635	15 19 32 15 12 26 21 22 20 21 22 2 21 22 22 32 1 22 24 24 24 24 24 24 24 24 24 24 24 24	4636 4637 4638 4639 4640 4641 4642 4643 4644 4645 4651 4652 4653 4654 4656 4657 4658 4656 4661 4661 4662 4663 4664 4667 4668 4667 4671 4672 4673 4670 4680 4681 4680 4681 4680 4681 4680 4681 4682 4683 4684 4688 4688 4688 4688 4688 4688	90 91 91 91 76 78 80 82 75 58 145 148 148 148 147 148 148 148 148 148 161 167 168 168 168 168 169 169 169 169 169 169 170 169 169 169 169 169 169 169 169	4691 4692 4694 4695 4696 4697 4699 4701 4702 4703 4704 4705 4706 4707 4708 4709 4711 4715 4716 4718 4719 4721 4721 4722 4723 4724 4725 4726 4727 4728 4727 4728 4734 4744 4745 4746 4747 4748 4747 4748 4747 4748 4747 4748 4747 4748 4747 4748 4747 4748 474748 4747 4748 4747 4748 4747 4748 4747 4748 4747 4748 4747 4748 4747 4748 4747 4748 4747 4748 4747 4748 4747 4748 4747 4748 474748 4747 4748 4749 4749	131 169 169 169 169 58 169 171 169 105 171 168 12 170 170 170 170 170 170 170 171 171 171	4751 4752 4753 4755 4756 4757 4759 4760 4761 4762 4763 4764 4765 4766 4767 4770 4771 4772 4773 4774 4775 4777 4778 4777 4778 4777 4778 4779 4780 4781 4782 4783 4784 4785 4780 4791 4792 4793 4794 4796 4797 4798 4798 4799 4790 4791 4796 4791 4798 4798 4798 4794 4798 4802 4811 4812 4811 4812 4811 4812 4811 4812 4811 4812 4811 4820 4821 4822	171 171 171 171 168 173 173 173 140 171 170 60 171 171 171 171 171 171 172 172 172 172	4823 4824 4825 4826 4827 4828 4829 4831 4832 4833 4834 4835 4836 4840 4841 4845 4848 4849 4850 4851 4853 4856 4857 4856 4857 4856 4857 4856 4861 4862 4863 4864 4865 4863 4870 4871 4872 4873 4879 4879 4879 4879 4879 4879 4879 4881	38   159   60   31   15   31   27   26   26   19   19   31   15   31   159   15   15   15   15   15   15

No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.
4884 4885 4886 4887 4890 4892 4893 4894 4895 4896 4897 4896 4901 4901 4905 4906 4907 4908 4909 4910 4911 4912 4913 4914 4915 4916 4917 4918 4917 4918 4919 4911 4919 4911 4919 4911 4919 4911 4919 4911 4919 4911 4919 4911 4919 4911 4919 4911 4919 4911 4919 4911 4	172 172 172 172 172 172 172 172 172 172	4940 4941 4942 4943 4944 4944 4945 4947 4951 4952 4953 4954 4955 4966 4967 4961 4963 4964 4965 4966 4967 4968 4969 4971 4974 5000 5032 5033 5035 5036 5036 5037 5036 5040 5040 5040 5040 5050 5050 5050 505	68 137 26 15 17 34 123 123 123 124 125 125 125 124 126 127 5 118 129 140 140 140 140 144 168 168 148 148 149 149 140 140 140 140 140 140 140 140	5053 5054 5055 5056 5057 5058 5060 5061 5062 5063 5064 5065 5067 5068 5067 5068 5067 5073 5074 5073 5074 5078 5080 5081 5082 5083 5084 5089 5090 5091 5092 5093 5094 5095 5096 5097 5098 50990 5100 5101 5105 5106 5107	61   128   60   128   106   106   107   10	5108 5109 5110 5111 5113 5114 5115 5122 5123 5125 5126 5127 5128 5129 5130 5131 5135 5136 5137 5138 5139 5140 5141 5142 5148 5149 5151 5155 5166 5157 5158 5159 5160 5161 5162 5163	100 99 102 102 94 67 152 162 167 134 67 134 68 123 107 127 50 51 110 127 50 128 29 128 29 128 128 126 163 126 163 126 163 126 163 126 163 126 163 124 163 124 163 124 164 164 164 164 164 164 164	5166 5167 5168 5169 5170 5171 5172 5173 5174 5175 5176 5177 5178 5179 5180 5181 5182 5183 5184 5185 5186 5187 5192 5193 5194 5192 5193 5204 5205 5206 5207 5208 5209 5211 5212 5213 5214 5215	124 164 124 164 123 124 164 123 124 164 123 164 123 164 123 164 123 164 123 164 123 164 127 164 167 126 60 127 164 127 126 60 127 143 173 173 173 173 173 173 173 17	5220 5221 5222 5223 5224 5225 5226 5227 5228 5229 5230 5231 5234 5235 5236 5237 5238 5243 5245 5255 5257 5258 5257 5258 5264 5265 5266 5267 5268 5269 5270 5271 5272 5278 5278 5278 5279 5288 5261 5262 5263 5264 5265 5266 5267 5268 5269 5270 5271 5272 5278 5278 5278 5279 5288 5269 5279 5288 5269 5277 5278 5278 5278 5278 5278 5278 5278	63 111 109 109 144 87 116 1112 112 112 112 112 112 112 112 11

No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.
5290 5291 5292 5293 5294 5295 5296 5297 5298 5299 5300 5301 5302 5303 5304 5305 5306 5307 5308 10 5311 5312 5313 5314 6315 5314 6315 5313 5314 5315 5314 5315 5314 5315 5314 5315 5326 5336 5337 1: 5338 5339 5330 5341 5341 5342 5343 5341 5342 5344 5345 5346 5347 5348 5351 5344 5345 5346 5347 5348 5351 5354	488 488 488 488 488 488 488 488 488 488	5356 5357 5358 5359 5361 5362 5365 5366 5367 5365 5370 5371 5373 5374 5375 5377 5378 5379 5381 5382 5381 5382 5383 5384 5385 5386 5387 5389 5390 5391 5393 5394 5395 5391 5393 5394 5395 5391 5395 5391 5395 5391 5391 5391	41 42 155 168 42 37 148 109 112 1147 146 55 49 49 49 49 49 49 49 49 49 49	5426 5432 5433 54345 5435 5436 5437 5438 5444 5445 5444 5445 5452 5453 5454 5456 5457 5458 5456 5457 5458 5466 5467 5468 5467 5468 5467 5468 5467 5477 5478 5478	86 141 777 777 777 103 97 141 777 100 97 141 177 22 100 1172 49 100 1155 53 53 55 66 68 7 8 44 44 44 44 44 44 44 44 44 44 44 44 4	5492 5493 5494 5496 5496 5496 5497 5498 5500 5501 5502 5503 5504 5505 5511 5512 5513 5514 5515 5518 5520 5521 5522 5533 5524 5526 5522 5533 5534 5532 5533 5534 5533 5534 5535 5536 5537 5538 5539 5539 5539 5539 5531 5532 5533 5534 5535 5536 5537 5538 5534 5535 5534 5535 5534 5535 5534 5535 5534 5535 5534 5535 5534 5535 5534 5535 5534 5535 5534 5535 5534 5535 5536 5537 5538 5534 5535 5534 5535 5534 5535 5534 5535 5534 5535 5534 5535 5534 5535 5534 5535 5534 5535 5534 5535 5536 5537 5538 5534 5535 5534 5535 5536 5537 5538 5536 5537 5538 5539 5539 5539 5530 5531 5536 5537 5538 5539	25 27 11 10 16 16 18 17 68 22 23 3 69 17 19 15 4 20 19 19 2 21 21 26 22 23 30 31 33 30 32 38 59 99 4 4 73 15 54	5553 5554 5555 5555 5556 5557 5561 5562 5563 5566 5567 5566 5567 5573 5574 5577 5578 5577 5578 5577 5578 5580 5581 5583 5584 5588 5589 5599 5599 5599 5599 5599	$\begin{array}{c} 34\\ 18\\ 145\\ 138\\ 71\\ 63\\ 71\\ 742\\ 169\\ 177\\ 777\\ 777\\ 779\\ 111\\ 169\\ 140\\ 60\\ 69\\ 71\\ 142\\ 169\\ 170\\ 70\\ 460\\ 69\\ 70\\ 70\\ 460\\ 69\\ 70\\ 70\\ 60\\ 670\\ 70\\ 70\\ 69\\ 70\\ 70\\ 69\\ 70\\ 70\\ 70\\ 70\\ 70\\ 70\\ 70\\ 70\\ 70\\ 70$	5611 5612 5613 5614 5615 5616 5617 5619 5620 5621 5622 5623 5624 5625 5627 5633 5633 5634 5635 5636 5636 5637 5638 5630 5631 5632 5631 5635 5636	$ \begin{array}{c} 6 \\ 71 \\ 71 \\ 8 \\ 70 \\ 69 \\ 69 \\ 69 \\ 69 \\ 69 \\ 69 \\ 69 \\ 6$

===											
No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.	No.	Page.
5668 5669 5670 5671 5672 5678 5679 5680 5681 5682 5683 5685 5686 5689 5690 5700 5701 5702 5705 5706 5707 5708 5709 5711 5712 5713 5714 5715 5716 5717 5718 5719 5720 5721 5722 5723 5724 5725 5726 5727 5728 5729 5731 5732	22 13 11 13 172 10 102 147 10 145 32 32 21 21 21 22 20 20 20 20 20 20 20 20 20	5734 5735 5736 5737 5738 5740 5741 5742 5743 5744 5745 5748 5749 5750 5759 5763 5764 5765 5766 5767 5768 5769 5770 5771 5772 5773 5774 5775 5776 5780 5782 5794 5805 5806 5807 5808 5809 5810 5811 5812 5816 5819 5819 5819 5819 5819	4 92 71 146 146 146 146 146 146 146 146 146 14	5821 5822 5823 5824 5825 5826 5827 5828 5826 5830 5831 5832 5833 5834 5835 5836 5837 5842 5843 5845 5845 5846 5847 5849 5850 5851 5852 5853 5854 5855 5856 5857 5858 5860 5861 5862 5863 5864 5865 5866 5870 5871 5878	42 42 42 42 42 42 42 43 43 43 43 43 43 43 43 43 43 43 43 43	5879 5880 5881 5882 5883 5884 5885 5886 5887 5899 5890 5901 5903 5904 5905 5908 5909 5911 5912 5913 5914 5915 5916 5917 5918 5916 5917 5918 5919 5920 5921 5924 5925 5928 5929 5930 5931 5932	150   149   149   150   149   149   150   149   150   149   149   150   149   150   149   150   149   150   149   150   149   150   149   150   149   150   149   150   149   150   149   150   149   149   150   149   149   150   149   149   150   149   149   150   149   149   150   149   149   150   149   149   150   149   149   150	5933 5934 5935 5936 5936 5937 5940 5941 5942 5943 5944 5945 5946 5950 5951 5952 5953 5954 5955 5956 5955 5956 5956 5957 5968 5969 5961 5969 5961 5969 5961 5969 5961 5969 5961 5969 5969	150 150 149 138 139 59 59 59 59 59 59 59 59 59 5	5992 5993 5994 5995 5997 5998 5997 6500 6501 6502 6506 6507 6508 6510 6511 6512 6513 6514 6516 6516 6516 6517 6518 6516 652 652 652 652 652 652 652 652 652 65	27 6 50 48 140 48 136 141 129 6 6 7 7 8 8 13 20 20 14 8 8 16 16 16 16 7 9 32 28 23 18 29 59 7 7 29 152 29 152 29 149 49 49 49 49 49 49 49 49 49 49 49 49 4

## INDEX

TO

#### MINING DISTRICTS, AREAS, CAMPS, LOCATIONS AND CLAIMS,

ALSO TO

#### MINES, QUARRIES AND PITS.

#### ABBREVIATIONS.

#### A

	Page.
Acadia claim, McDame Ck., Cassiar, B.C. Silver ore from	47
- Colliery, Pictou co., N.S. Coal from	104
- Mines, Colchester co., N.S. Iron ore from	5, 76
, Pictou co., N.S. Coal from.	104
Acton mine, tp. Acton, Bagot co., Que. Copper ore from84	, 163
Adams mine, tp. N. Burgess, Lanark co., Ont. Apatite from	154
Albert Mines, Albert co., N.B. Bituminous shale from	164
Albion mine, Montagu, Halifax co., N.S. Gold quartz from	37
- Mines, Pictou co., N.S. Coal from	103
Alpha claim, Mt. Field, B.C. Silver ore from	42
Apex claim, Cottonwood-Smith Ck., B.C. Silver ore from	43
Arctic Circle claim, Boulder Ck., Omineca, B.C. Silver ore from	47
Ardmore claim, Nicola Valley, B.C. Silver ore from	47
Ascot mine, tp. Ascot, Sherbrooke co., Que. Copper ore from	85

В.

	Page.
Badger mine, tp. Gillies, Ont. Silver ore from	49
Baker's mine, Oldham, Halifax co., N.S. Gold quartz from	37
Baldwin mine, tp. Hull, Ottawa co., Que. Iron ore from	68
Balfour claim, Illecillewaet R., B.C. Silver ore from	44
Barber's mine, tp. Hull, Ottawa co., Que. Apatite from	, 154
Baxter's quarry, Cayuga, Haldimand co., Ont. Dolomite from	110
Baynes Sound mine, Comox, V. I., B.C. Coal from	101
Bay View quarry, Mary's Pt., Albert co., N.B. Sandstone from	111
Beaver claim, W. Kootanie dt., B.C. Silver ore from	45
- mine, tp. O'Connor, Ont. Silver ore from	9, 52
Becker mine, tp. Tudor, Hastings co., Ont. Iron ore from	70
Beck mine, tp. McGregor, Ont. Silver ore from	48
Bedard's quarry, Cleveland, Richmond co., Que. Slate from	107
Bee claim, Cayoosh Ck., B.C. Gold quartz from	47
Begley mine, Batchewahnung Bay, L. Superior, Ont. Copper ore from	89
Beliveau mine, Beliveau, Westmoreland co., N.B. Petroleum from	105 68
Belvidere mine, tp. Ascot, Sherbrooke co., Que. Iron ore from	74
Bentliffe mine, tp. Marmora, Hastings co., Ont. Iron ore from	108
Bernier quarry, St. John's, St. John's co., Que. Limestone from	46
Best claim, W. Kootanie dt., B.C. Silver ore from	
Best's mine, St. John, St. John co., N.B. Graphite from	46
Big Bend claim, Columbia R., B.C. Gold quartz from	46
— — mining region, B.C. Silver ores from	47
Bishop's quarry, tp. Nepean, Carleton co., Ont. Sandstone from	111
Bissonette's mine, tp. Upton, Drummond co., Que. Copper ore from	85
Black Chief claim, Kootanie L., B.C. Silver ore from	43
- Horse claim, Deception Ck., B.C. Silver ore from	42
- River mine, St. Flavien, Lotbinière co., Que. Copper ore from	35, 90
Blanchard's area, Pictou co., N.S. Iron ore from	72
Block House mine, Cape Breton co., N.S. Coal from	104
Blue Bell claim, Kootanie L., B.C. Silver ore from	44
Bird claim, W. Kootanie dt., B.C. Silver ore from	46
quarries Wentworth, N.S. Gypsum from	130
Ropanza claim, Cayoosh Ck., B.C. Gold quartz from	0, 41
mine L. Wahnapitae, Ont. Nickel ore from	- 98
nit to Portland Ottawa co., Que. Apatite from	161
Roston Ashestus Packing Co.'s mine, Megantic co., Que. Ashestus from 13	8, 140
Row River coal mine, Bow R., Alta, Coal from	. 100
Bristol mine to Bristol, Pontiac co., Que. Iron ore from	. 68
Pritich Empire claim Nicola Valley, B.C. Silver ore from	. 4/
David Mines I. Huron Ont. Jasper conglomerate from	w, 105
I. Huron Ont. Copper ore from	00, 01
Princt's quarry St. Armand. Missisquoi co., Que. Limestone from	, 100
Rupross' quarry Newnort, N.S. Gypsum from	. 100
Bygrove mine, S. Sherbrooke, Lanark co., Ont. Iron ore from	. 00

C.

	Page
Cahill's mine, Rawdon, Montealm co., Que. Gold rock from	
Calabogie mine, tp. Bagot, Renfrew co., Ont, Iron ore from	69
Caldwell mine, tp. Lavant, Lanark co., Ont. Iron ore from	69
Caledonia Gold field, Queen's co., N.S. Gold quartz from	38
— mine, Cape Breton co., N.S. Coal from	
Cameron's mine, tp. Madoc, Hastings co., Ont. Iron ore from	
— —, tp. Lochaber, Ottawa co., Que. Apatite from	
Canada Brown Stone quarry, Peel co., Ont. Sandstone from	
Canmore mine, nr. Canmore Station, C. P. R., Alta. Semi-anthracite from.	
Capel mine, tp. Ascot, Sherbrooke co., Que. Copper ore from	
Cariboo and Northern Interior of B.C. Silver ore from	
- claim, Illecillewaet dt., B.C. Silver ore from	
Carleton claim, Mt. Stephen, B.C. Silver ore from	
Carnie's mine, Carleton co., N.B. Iron ore from	
Cascade mine, Garden R., dt. Algoma, Ont. Lead ore from	
— — , Cascade R., Rocky Mtns., Alta. Semi-anthracite from Central Rawdon gold mine, Hants co., N.S. Gold quartz from	
Centre quarry, Grandique, N.S. Gypsum from	
Chaffey mine, tp. S. Crosby, Leeds co., Ont. Iron ore from	
Chambers' quarry, Brooklyn, N.S. Gypsum from	
Christie's Lake mine, tp. S. Sherbrooke, Lanark co., Ont. Iron ore from.	63
Churchill's mine, Hants co., N.S. Manganese ore from12,	
Clark's mine, tp. Ascot, Sherbrooke co., Que. Iron ore from	
Clifton quarries, Gloucester co., N.B. Sandstone from	
do quarry, Windsor, N.S. Gypsum from12	
Coe Hill mine, tp. Wollaston, Hastings co., Ont. Iron ore from	
Colonial copper mine, Westmoreland co., N.B. Copper cre from	87
Copper Bonanza claim, Otter-tail Ck., B.C. Silver from	
Copper Cliff mine, tp. McKim, Ont. Copper ore from	
, tp. McKim, Ont. Nickel ore from54,	
Cornucopia claim, Mt. Stephen, B.C. Silver ore from	
Cottonwood mine, Cottonwood, Smith Ck., B.C. Silver ore from	
Cowan mine, tp. Dalhousie, Lanark co., Ont. Iron ore from	
Cowan's mine, tp. N. Burgess, Lanark co., Ont. Apatite from	
Coxheath copper mine, Cape Breton co., N.S. Copper ore from	
Crang's gold mine, tp. Tudor, Hastings co., Ont. Gold quartz from  Crane Iron Co's mine, Guysborough co., N.S. Iron ore from	
Crescent claim, Spilimichene R., B.C. Silver ore from	
Crow Nest mine, Guysborough co., N.S. Gold quartz from	
Cullen area, East R., Pictou co., N.S. Iron ore from	
Outlood at long 1 throw the street of the st	10
D.	
Dalhousie mine, tp. Dalhousie, Lanark co., Ont. 1ron ore from	65 79
Dandy claim, Toad Mtn., B.C. Silver ore from	
Dardanelles claim, W. Kootanie dt., B.C. Silver ore from	

Dawson mine, Pie Isd., Lake Superior, Ont. Silver ore from.  DeCew's quarry, Oneida, Haldimand co., Ont. Sandstone from.  Della claim, Kootanie L., B.C. Silver ore from.  Dictator claim, Kootanie L., B.C. Silver ore from.  Dominion mine, tp. Madoc, Hastings co., Ont, Iron ore from.  Drummond Colliery, Pictou co., N.S. Coal from  Dufferin mine, tp. Madoc, Hastings co., Ont. Iron ore from:  Dugway pit, tp. Portland W., Ottawa co., Que. Apatite from.  Duncan mine, tp. McGregor, Ont., Silver ore from.  Dunvegan claim, Illecillewaet dt., B.C. Silver ore from.  Durham mine, tp. Durham, Drummond co., Que. Copper ore from.  Dwyer and Loughran's loc., tp. Drury, Ont. Nickel ore from.	Page. 52 111 43 43 70 104 70 151 48 45 85
E.	
East quarry, Grandique, N.S. Gypsum from.  East Kootanie district, B.C. Silver ores from.  Ebenezer mine, Hector Pass, Rocky Mtns., B.C. Mercury ore from.  Edinburgh claim, Illecillewaet dt., B.C. Silver ore from.  Emerald mine, tp. Buckingham, Ottawa co., Que. Apatite from. 150,  — mining loc., Root R., Ont. Copper ore from.  Emery mine, Cape Breton co., N.S. Coal from.  Emily mine, tp. Tudor, Hastings co., Ont. Iron ore from.  Enterprise mine, tp. McTavish, Ont. Silver ore from.  Eureka mine, Fort Hope, Fraser R., B.C. Silver ore from.  Evans mine, tp. Snider, Ont. Copper ore from.  — tp. Snider, Ont. Nickel ore from.  Evening Tide claim, Toad Mtn., B.C. Silver ore from.  Ewarts location, L. Superior, Ont. Copper ore from.	86 104 70 51 50 86
F.	
Farquhar and Booth's quarry, Halton co., Ont. Sandstone from	45 79 , 68 70 69

G.

Pag
Galt's mine, tp. Orford, Sherbrooke co., Que. Copper ore from 88
Gardiner mine, Cape Breton co., N.S. Coal from 104
Gatling mine, tp. Marmora, Hastings co., Ont. Gold ore from38, 39, 50
Gibson's quarry, tp. Grimsby, Lincoln co., Ont. Dolomite from 110
Gillen mine, tp. Madoc, Hastings co., Ont. Iron ore from
- tp. Marmora, Hastings county, Ont. Gold quartz from 38
Gladstone mine, tp. Marmora, Hastings co., Ont. Gold quartz from 30
Glendower mine, tp. Bedford, Frontenac county., Ont. Iron ore from 69
Gold Hill claim, Illecillewaet dt., B.C. Silver ore from 43 Goodfellows mine, Albert co., N.B. Copper ore from 90
Grant mine, tp. Buckingham, Ottawa co., Q. Apatite from
Grant's quarry, Summerville, N.S. Gypsum from
Great Western claim, W. Kootanie dt., B.C. Silver ore from 40
Grizzly claim, Toad Mtn., B.C. Silver ore from
H.
Haldane's mine, tp. Wakefield, Ottawa co., Que. Apatite from151, 15e
Hancock's quarry, Barton, Wentworth co., Ont. Dolomite from 110
Handkerchief mine, Lotbinière co., Que. Gold quartz from
Haney's claim, N. Saskatchewan R., Ala. Iron ore from
Hanson's quarry, Falmouth, N.S. Gypsum from
Harrison location, St. Ignace Isd., Lake Superior, Ont. Copper ore from. 86
Harris' mine, tp. Wakefield, Ottawa county, Que. Apatite from 151
Hartford mine, tp. Ascot, Sherbrooke co., Que. Copper ore from 90
Harvey Hill mine, Megantic co., Que. Copper ore from7, 84, 85, 88, 89, 90
Haycock mine, tp. of Templeton, Ottawa co., Que. Iron ore from 73
Hendryx mining camp, B.C. Silver ores from 44
Herringback claim, Illecillewaet dt., B.C. Silver ore from 44
Hibbard Mining Co., L. George, York co., N.B. Antimony ore from54, 57
Highlander claim, Kootanie L., B.C, Silver ore from
High Rock mine, tp. Portland W., Ottawa co., Que. Apatite from 15
Hobson mine, tp. Madoc, Hastings co., Ont. Iron ore from
Homestead claim, Columbia R., B.C. Gold quartz from
Howse mine, tp. Bedford, Frontenac co., Ont. Iron ore from
Hull mica mine, tp. Hull, Ottawa co., Que. Mica from
Hunter's pit, tp. Portland W., Ottawa co., Que. Apatite from 151
Huntingdon mine, tp. Bolton, Brome co., Que. Copper ore from85, 90, 164
Huronian mine, tp. Moss, Ont. Gold ore from
Huron Copper Bay loc., L. Huron, Ont. Copper ore from
I.
They doing Illevilleweet dt B.C. Silvey one from
Ibex claim, Illecillewaet dt., B.C.       Silver ore from

Inverhuron quarries, Bruce co., Ont. Lithographic stone from  Iron Horse claim, W. Kootanie dt., B.C. Silver ore from  Iroquois claim, Toad Mtn., B.C. Silver ore from  Isabella claim, Illecillewaet R., B.C. Silver ore from	Page. 149 45 42 44
J.	
Jackson Rae mine, tp. Templeton, Ottawa co., Que. Apatite from  Jeff Davis claim, Kootanie L., B.C. Silver ore from  Jennings diggings, Halifax co., N.S. Gold quartz from  Jenny Long claim, Nicola Valley, B.C. Silver ore from  Joggins mine, Cumberland co., N.S. Coal from  Johnson's mine, tp. Thetford, Megantic co., Que. Asbestus from	
K,	
Kaslo-Slocan Mines, B.C. Silver ores from  Kean ore bed, tp. Marmora, Hastings co., Ont. Iron ore from  Keating's location, L. Huron, Ont. Copper ore from  Killog mine, Sheet Hbr., Halifax co., N.S. Gold quartz from  Kilpatrick's quarry, Frontenac co., Ont. Limestone from  King's mine, tp. Thetford, Megantic co., Que. Asbestus from  King William claim, Nicola Valley, B.C. Silver ore from  Chief claim, Kootanie L., B.C. Silver ore from  Chief claim, Kootanie L., B.C. Silver ore from  Krao claim, Kootanie L., B.C. Silver ore from	37 109 140
L.	
Labeau Mines, Cottonwood-Smith Ck., B.C. Silver ore from  Lady of the Lake claim, Illecillewaet dt., B.C. Silver ore from  Lanark claim, Illecillewaet R., B.C. Silver ore from  Latchey's quarry, Windsor, N.S. Gypsum from.  Leary lead, Tangier, Halifax co., N.S. Gold quartz from.  Leronde mine, tp. Bagot, Renfrew co., Ont. Iron ore from.  Lingan mine, Cape Breton co., N.S. Coal from.  Lionais mine, Black L., Megantic co., Que. Asbestus from.  Little Donald claim, Kootanie L., B.C. Silver ore from.  Location C. 45, Little Pic R., Ont. Lead ore from.  — R. 238, dt. Thunder Bay, Ont. Silver ore from.  — R. 280, dt. Thunder Bay, Ont. Iron ore from.  13½	43 45 44 129 5, 37 69 104 140 43 51 49 74

	Page
Location T. 96, tp. Gillies, Ont. Silver ore from	41
- Y. xii., tp. Killarney, Ont. Iron ore from	64
- 22-26, tp. McIntyre, Ont. Iron ore from	67
Lorway mine, Cape Breton co., N.S. Coal from	104
Louis claim, nr. Otter-tail Station, C.P.R., B.C. Silver ore from	41
Louise mine, tp. Tudor, Hastings co., Ont. Iron ore from	70
Lucky Jim claim, W. Kootanie dt., B.C. Silver ore from	46
M.	
McAndrew's pit, tp. Portland W., Ottawa co., Quebec. Apatite from	151
McCallum ore bed, tp. Marmora, Hastings co., Ont. Iron ore from	70
McCormick's mine, tp. Neelon, Ont. Nickel ore from	58
McFarlane's mine, Frontenac co., Ont. Apatite from	154
McGregor's quarry, Argenteuil co., Que. Limestone from	108
McIntyre's mine, L. Superior, Ont. Zinc ore from	59
McKellar Bros. location, Atic-okan R., Ont. Iron ore from	
McKinley's location, dt. Thunder Bay, Ont. Iron ore from	71
— mine, Alma, Albert co., N.B. Copper ore from	87
McLaurin's mine, tp. Templeton, Ottawa co., Que. Apatite from150	
McMullin's quarry, Otty L., Lanark co., Ont. Sandstone from	111 42
McMurdo mining area, B.C. Silver ores from	111
McVicar's mine, Cape Breton co., N.S. Iron ore from	72
Mahoney's quarry, tp. Hull, Ottawa co., Quebec. Limestone from	108
Malaspina mine, Texada Isd., B.C. Copper ore from	92
Maple Leaf claim, Illecillewaet R., B.C. Silver ore from	44
Marsh Colliery, Pictou co., N.S. Coal from	104
- mine, Rocky Mtns, Alta. Semi-anthracite from	102
- ore bed, tp. Marmora, Hastings co., Ont. Iron ore from	70
Mary Reynolds claim, Nicola Valley, B.C. Silver ore from	47
Mascot claim, Copper Ck., B.C. Silver ore from	42
Merry mine, tp. Palmerston, Frontenac co., Ont. Iron ore from	66
Meyer's mine, tp. S. Sherbrooke, Lanark co., Ont. Iron ore from	63
Melbourne quarry, Richmond co., Que. Asbestus from	138
- slate quarry, Richmond co., Que. Slate from	107
Miller's mine, tp. Grenville, Argenteuil co., Que. Graphite from	136
Milner bed, Annapolis co., N.S. Iron ore from	68
Mining location, see under Locations.	7.00
Moberly's mine, Rocky Mtns., B.C. Semi-anthracite from	102
Monarch claim, Mt. Stephen, B.C. Silver-lead ore from	∠, 04
from	47
Montagu mine, Halifax co., N.S. Gold quartz from	37
Monte Cristo claim, W. Kootanie dt., B.C. Silver ore from	48
Montezuma claim, W. Kootanie dt., B.C. Silver ore from	43

Montreal and New Glasgow Coal Co.'s mine., Pictou co., N.S. Coal from.  Moore's clearing, tp. Westmeath, Renfrew co., Ont. Graphite from  — mine, tp. Hull, Ottawa co., Que. Apatite from	Page. 104 137 154 154 62 91 58
N.	
Neilson mine, tp. Madoc, Hastings co., Ont. Iron ore from Nelson's claim, Upper Cherry Ck., B.C. Gold from. Nelson Island quarry, Jervis Inlet, B.C. Granite from. Neosho claim, Kootanie L., B.C. Silver ore from. Nevada claim, Tulameen R., B.C. Silver ore from. Nicola or Stump Lake Mines, B.C. Silver ore from. Nicolet Branch mine, tp. Ham, Wolfe co., Que. Copper ore from. 85, 89 Nigadoo mine, Gloucester co., N.B. Lead ore from	47 46 , 90
О.	
O'Connor's claim, tp. Lorne, Ont. Nickel ore from	4,59 46 54 - 70
P.	
Paxton & Jones' mine, Haliburton co., Ont. Iron ore from.  Payne claim, W. Kootanie dt., B.C. Silver ore from.  Payzant's quarry, Falmouth, N.S. Gypsum from.  Peter Bell location, L. Superior, Ont. Iron ore from.  — Totten lot, Colchester co., N.S. Iron ore from.  73  Pie Island mine, Pie Isl., L. Superior, Ont. Silver ore from.  Pioneer claim, Otter-tail Ck., B.C. Silver ore from.  Planet claim, Nicola Valley, B.C. Silver ore from.  Point Anne quarry, Hastings co., Ont. Limestone from.  — Levis quarry, Levis co., Que. Sandstone from.  Poor Man claim, vic. Nelson, B.C. Silver ore from.  Porcupine mine, tp. Gillies, Ont. Silver ore from.	71 45 130 64 7, 76 52 41 47 109 112 43 48

	age.	
Potter bed, Annapolis co., N.S. Iron ore from	68	
Prince's location, L. Superior, Ont. Copper ore from	, 92 48	
- L. Superior, Ont. Silver ore from	40	
R.		
Rabbit Mountain mine, tp. Paipoonge, Ont. Silver ore from	48	
Railway quarry, Lanark co., Ont. Dolomite from	110	
Ramsay lead mine, Lanark co., Ont. Lead ore from		
Rankin Hill slate quarry, Bagot co., Que. Slate from	106	
Rankin's quarry, Renfrew co., Ont. Sandstone from	111	
Renfrew Granite quarry, Renfrew co., Ont. Limestone from	109	
Richardson mine, tp. Madoc, Hastings co., Ont. Gold from	39	
Robertsville mine, Frontenac co., Ont. Iron ore from	69	
Rockland slate quarry, Richmond co., Que. Slate from	107	
Rockville quarries, Carleton co., Ont. Limestone from	108	
Rosebush claim, Copper Ck., Kamloops L., B.C. Cinnabar from	, 30 65	
2. Julio 10000122, 24 Suportor, 0-00 2-00 000 1-00-100 100 100 100 100 100 100		
S.		
Sadou's ledge, Mosquito Ck., Cariboo, B.C. Silver ore from	47	
Sailor Boy claim, Illecillewaet R., B.C. Silver ore from	44	
St. Alban quarry, Portneuf co.; Que. Limestone from	107	
Ste. Caroline mine, St. Clair, Dorchester co., Que. Copper ore from	87	
St. Charles mine, tp. Tudor, Hastings co., Ont. Iron ore from	$\frac{70}{74}$	
St. Francis mine, Richmond co., Que. Copper ore from	84	
Sand-pit bed, Peterborough co., Ont. Iron ore from	63	
Sanquahar claim, Illecillewaet dt., B.C. Silver ore from	44	
Schooner Pond mine, Cape Breton co., N.S. Coal from	104	
Scottish Canadian Co.'s mine, Megantic co., Que. Asbestus from	138	
Senecal's mine, Black L. Megantic co., Que. Asbestus from	140	
Sexsmith mine, tp. Madoc, Hastings co., Ont. Iron ore from	70	
Seymour mine, tp. Madoc, Hastings co., Ont. Iron ore from65  — ore bed. See Seymour mine.	3, 70	
Shakespere claim, Illecillewaet dt., B.C. Silver ore from	45	
Sheppard's location, St. Ignace Isd., L. Superior, Ont. Copper ore from.	88	
Sheran's mine, Coal Banks, Belly R., Alta. Coal from	98	
Shuniah mine, tp. McIntyre, Ont. Silver ore from	48	
Silver Bow claim, Illecillewaet dt., B.C. Silver ore from	45	
- Harbour mine, tp. McGregor, Ont. Silver ore from	48	
<ul> <li>Hill claim, tp. Lybster, Ont. Silver ore from.</li> <li>Islet, L. Superior, Ont. Silver ore from.</li> </ul>	49 48	
- islow, in Superior, One. Survey of trout	40	

	Page.
Silver King claim, Toad Mtn., B.C. Silver ore from	42
- Lake mining location, tp. McTavish, Ont. Iron ore from63	5, 74
tp. McTavish, Ont. Lead ore from	53
— Mountain mine, tp. Lybster, Ont. Silver ore from	49
— Queen claim, Jamieson Ck., B.C. Silver ore from	47
Tip claim, W. Kootanie dt., B.C. Silver ore from	45
Singleton mine, tp. McIntyre, Out. Silver ore from	48
Sky Line claim, Kootanie L., B.C. Silver ore from	43
Slocan Boy claim, W. Kootanie dt., B.C. Silver ore from	46
— Star claim, W. Kootanie dt., B.C. Silver ore from	46
Smith's mine, tp. Ascot, Sherbrooke co., Que. Iron ore from	63
— pit, tp. Portland W., Ottawa co., Que. Apatite from	151
Solo claim, W. Kootanie dt., B.C. Silver ore from	45
Southern Interior of British Columbia. Silver ores from	46
Split Rock plumbago mine, St. John co., N.B. Graphite from	136
Spokane claim, Kootanie L., B.C. Silver ores from	43
Springhill Mines, Cumberland co., N.S. Coal from	104
Springhill Mines, Chimberland Co., N.S. Coal Holl	150
Spring mine, tp. Templeton, Ottawa co., Que. Apatite from	47
Stanley ledge, Cayoosh Ck., B.C. Gold quartz from	
Star claim, Nicola Valley, B.C. Silver ore from	151
Hill mine, tp. Portland W., Ottawa co., Que. Apatite from	107
Steele's quarry, Richmond co., Que. Slate from	62
Stephen's mine, Walton, Hants co., N.S. Manganese ore from	52
Sterling mine, Kokesaila R., V. I., B.C. Lead ore from	73
Stevens mine, Carleton co., N.B. Iron ore from	
Stobie location, dt. Algoma, Ont. Copper ore from	74
— mine, tp. Coffin, Ont. Iron ore from	
tp. Blezard, Ont. Nickel ore from	110
Strange's quarry, Rockwood, Wellington co., Ont. Dolomite from	110 46
Stump Lake or Nicola Mines. Silver ore from	
Suffield mine, tp. Ascot, Sherbrooke co., Que Copper ore from	0, 90
Sultana mine Lake of the Woods, Ont. Gold quartz from	99
Surrise claim, Kootanie L., B.C. Silver ore from	43
Sutherland's mine Souris R., Man. Lignite from	94
Graden claim Kootanie I. B.C. Silver ore from	43
Sweet's mine to Sutton, Brome co., Que. Copper ore from	84
quarry Windsor, N.S. Gypsum from	129
Sydney Mines Cane Breton co., N.S. Coal from	104
Syenite Bluff claim, Deception Ck., B.C. Silver ore from	42
T.	
Three A mine, tp. McGregor, Ont. Silver ore from	48
Thunder Bay mine to McGregor, Ont. Silver ore from	48
mining region. Ont. Silver ores from	48
Tiger claim, Kootanie L., B.C. Silver ore from	43

	Page.
Timothy claim, Read Isd., V. I., B.C. Mercury ore from	7
Toad Mountain mining camp, B.C. Silver ores from	42
Todd's mine, St. Stephen, Charlotte co., N.B. Nickel ore from	54
Tough Nut claim, Toad Mtn., B.C. Silver ores from	42
Travers mine, tp. Drury, Ont. Nickel ore from	-59
Triangle claim, W. Kootanie dt., B.C. Silver ores from	45
Tubal Cain claim, Nicola Valley, B.C. Silver ore from	
Twin Cities mine, tp. Gillies, Ont. Silver ore from	48
<b>U</b> .	
Umatilla claim, Cottonwood-Smith Ck., B. C. Silver ore from	43
Uncle Sam claim, Cottonwood-Smith Ck., B.C. Silver ore from	43
Union claim, Illecillewaet dt., B.C. Silver ore from	45
— Tulameen R., B.C. Silver ore from	47
- mine, Comox, V. I., B.C. Coal from	101
United claim, Kootanie L., B.C. Silver ore from	43
$\nabla$ .	
Vale Colliery, Pictou co., N.S. Coal from.	104
Vaughan's mine, Bow R., Alta. Coal from	100
Vermilion mine, tp. Denison, Ont. Copper ore from	91
- tp. Denison, Ont. Nickel ore from	8, 58
Vernon mine, St. Martin's, St. John co., N.B. Copper ore from	. 90
Victoria mine, Cape Breton co., N.S. Coal from:	104
. — — Garden R., Ont. Lead ore from	1, 53
Villeneuve mica mine, Ottawa co., Que. Felspar from	, 148
— — Ottawa co., Que. Mica from	141
W.	
Wallace mine, dt. Algoma, Ont. Copper ore from	86 91
- dt. Algoma, Ont. Nickel ore from	
- mining location, dt. Algoma, Ont. Iron ore from	$\frac{74}{74}$
Wallbridge mine, tp. Madoc, Hastings co., Ont. Iron ore from6	
Washington claim, W. Kootanie dt., B.C. Silver ore from.	46
Waters mine, Alma, Albert co., N.B. Copper ore from	88
Watts mine, tp. Portland E., Ottawa co., Que. Apatite from	153
Wellington mine, L. Huron, Ont. Copper ore from	36, 91
Nanaimo, V. I., B.C. Coal from	101
— W. Kootanie at., B.C. Silver ore from	16, 50
Wentworth grant, Pictou co., N.S. Iron ore from	64
West Kootanie district, B.C. Silver ores from	42
West quarry, Grandique, N.S. Gypsum from	129

I	Page,
White Heather claim, W. Kootanie dt., B.C. Silver ore from	45
Wickham mine, Drummond co., Que. Copper ore from	85
Wilbur mine, tp. Lavant, Lanark co., Ont. Iron ore from	69
THE STATE OF THE S	129
Williams mine, tp. Bagot, Renfrew co., Ont. Iron ore from	69
Wilson mine. tp. Bagot, Renfrew co., Ont. 1ron ore from	69
Wilson's location, L. Superior, Ont, Copper ore from	89
— mine, tp. Wakefield, Ottawa co., Que. Apatite from151,	154
Wood's location, tp. Sibley, Ont. Lead ore from	52
Worthington mine, tp. Drury, Ont. Copper ore from	, 91
— — tp. Drury, Ont. Nickel ore from	
Wright's mine, tp. Hull, Ottawa co., Que. Lead ore from	, 53
- quarry, tp. Hull, Ottawa co., Que. Limestone from108,	127
Υ.	
Yankee mine, tp. S. Crosby, Lanark co., Ont. Iron ore from	79
Yosemite claim, W. Kootanie dt., B.C. Silver ore from	45
	154
THE A STATE OF THE	130
•	
Z.	
۵.	
Zeila claim, Nicola Valley, B.C. Silver ore from	47 55

## INDEX TO SUBJECTS.

For explanation of the abbreviations employed in this Index see heading to the preceding one to Mining districts, etc.

A.	
eti	age.
Abrasive materials	160
Infusorial earth	161
Marl, arenaceous and calcareous	
Mica slates	161
Sandstones	160
Silicious sand	162
Silicious silt	162
Actinolite	17
Agalmatolite	23
Agate	149
Alabaster	147
Albertite	, 104
Albite	149
Alluvial gold,—see Placer gold.	
Almandite18	3, 31
Alum, Feather,—see Halotrichite.	
Alum, Iron,—see Halotrichite.	
Alunogen	28
Amazon-stone	149
Amethyst	, 164
Analcite	2, 32
Andalusite	19
Andesine	164
Andradite	18
Anhydrite, from:	
Hillsborough, Albert co., N.B	, 131
Wentworth, Hants co., N.S	27
Windsor, Hants co., N.S	131
Ankerite, from:	
Acadia Mines, Colchester co., N.S	83
Acton, tp. of, Bagot co., Que	14
Colchester co., N.S.	14
Anorthite	15
Anthracite, Cowgitz, Graham Island, B.C	
Anthracite, semi,—see Semi-anthracite.	, 102
Anthracitic coal, Cascade River, Rocky Mtns., Alta	102
Anthracide coal, Cascade luvel, 100th Mills., Alva	

	Pag	ge.
Antimony, Minerals and ores of:		
Antimony, Native	4,	57
— blende,—see Kermesite.		
bloom,—see Valentinite.		
glance,—see Stibnite.		
Grey antimony,—see Stibnite.		
Kermesite	8,	57
Red antimony,—see Kermesite.		
Senarmontite		11
Stibnite	54,	57
Valentinite	Ι,	57
Antimony, Native, from:		
Prince William, York co., N.B		57
South Ham, tp. of, Wolfe co., Que	54,	57
Antimony ore, specimens illustrating the distribution of		57
Apatite, from:		
Bathurst tp. of, Lanark co., Ont		154
Bedford, tp. of, Frontenac co., Ont	l, ]	155
Bowman, tp. of, Ottawa co., Que		154
Bromley, tp. of, Renfrew co., Ont		33
Buckingham, tp. of, Ottawa co., Que	3,	163
Drummond, tp. of, Lanark co., Ont		154
Dudley, tp. of, Peterborough co., Ont		155
Dysart, tp. of, Peterborough co., Ont		155
Eabamet L., Albany R., Severn dt		155
Ferris, tp. of, dt. Nipissing, Ont		155
Grenville, tp. of, Argenteuil co., Que15	0,	153
Harcourt, tp. of, Peterborough co., Ont		155
Hinchinbrook, tp. of, Frontenac co., Ont		151
Hull, tp. of, Ottawa co., Q	3,	154
Huntley, tp. of, Carleton co., Ont		154
Litchfield, tp. of, Pontiac co., Que		154
Lochaber, tp. of, Ottawa co., Que	0,	153
Loughborough tp. of, Frontenac co., Ont		154
March, tp. of, Carleton co., Ont		154
Monmouth, tp. of, Peterborough co., Ont		155
North Burgess, tp. of, Lanark co., Ont	)1,	194
North Elmsley, tp. of, Lanark co., Ont	11,	104
Portland East, tp. of, Ottawa co., Que	)U,	159
Portland West, tp. of, Ottawa co., Que	)1,	33
Ross, tp. of, Renfrew co., Ont	:1	
Sebastopol, tp. of. Renfrew co., Ont	11,	154
Storrington, tp. of, Frontenac co., Ont	50,	159
Templeton, tp. of, Ottawa co., Que	57.	154
Wakefield, tp. of, Ottawa co., Que	,1,	154
Wells, tp. of, Ottawa co., Que		101

		Page.
Apatite, Mineral associations of		155
Apatite, specimens illustrating the distribution of		153
Aphrodite		25
Apophyllite		20, 32
Argentite (silver glance), from:		
Crooks, tp. of, dt. Thunder Bay, Out		48
Gillies, tp. of, dt. Thunder Bay, Ont		48
Granite Ck., Tulameen R., B.C		6
Jarvis Isd., L. Superior, Ont		49
Lybster, tp. of, dt. Thunder Bay, Ont		6, 49
McGregor, tp. of, dt. Thunder Bay, Ont		48
O'Connor, tp. of, dt. Thunder Bay, Ont		49
Paipoonge, tp. of, dt. Thunder Bay, Ont		48, 49
Rabbit Mtn., dt. Thunder Bay, Ont		49
Arquerite, Vital Ck., dt. Omenica, B.C		6
Arsenic, Native, Fraser R., B.C		5
Arsenic ores, specimens illustrating the distribution of		57
Arsenical pyrites,—see Arsenopyrite.		
Arsenide of platinum,—see Sperrylite.		
Arsenopyrite (mispickel), from:		
Ascot, tp. of, Sherbrooke co., Que		57
Caledonia Gold Field, Queens co., N.S		8
Marmora, tp. of, Hastings co., Ont	8,	56, 57
Montague, Halifax co., N.S		57
Asbestus (amphibole), from:		
Marmora, tp. of, Hastings co., Ont		17
Potton, tp. of, Brome co., Que		17
Asbestus (serpentine var. chrysotile), from:		
Big Isd., L. Nicolet, Wolfe co., Que.,	13	8, 140
Black L., Megantic co., Que		138
Coleraine, tp. of, Megantic co., Que	13	8, 140
Elzevir, tp. of, Hastings co., Ont	13	8, 140
Litchfield, tp. of, Pontiac co., Que		140
Melbourne, tp. of, Richmond co., Que	13	8, 140
North Burgess, tp. of, Lanark co., Ont		140
Pisarinco Cove, St. John co., N.B		140
Ross, tp. of, Renfrew co., Ont		140
Sebastopol, tp. of, Reafrew co., Ont		138
Shipton, tp. of, Richmond co., Que		140
Templeton, tp. of, Ottawa co., Que	13	8, 140
Thetford, tp. of, Megantic co., Que	13	8, 140
Asbestus, articles manufactured from	13	8, 140
Asbestus, specimens illustrating the distribution of		140
Asphaltum,—see Petroleum, altered, and bituminous sand rock.		
Asteriated quartz		149
Augite		16

A 40	Page.
Auriferous conglomerate, Gay's R., Colchester co., N.S,	38
— dolomite, Leeds, tp. of, Megantic co., Que	5, 39
— gneiss, Rawdon, tp. of, Montcalm co., Que	39
- hematite, Clinton, B.C	5
— mispickel, Marmora, tp. of, Hastings co., Ont	39
Auriferous quartz, from:	
Aubert-Gallion, Beauce co., Que	38
Belmont, tp. of, Peterborough co., Ont	38
Big Bend, Columbia R., B.C.	46
Caledonia, Queen's co., N.S.	38
Cayoosh Ck., B.C	5, 47
Cherry Ck. and Kettle R., headwaters of, B.C	47
Devils Rapids, Chaudière R., Beauce co., Que	38
Goldenville, Guysborough co., N.S	37
Gold R., Lunenburg co., N.S	38
Kelly Lake Ck., Fraser E., B.C	47
Lake of the Woods, dt. of Rainy R., Ont	38
Lake Shebandowan, dt. Thunder Bay, Ont	38
Lawrencetown, Halifax co., N.S.	37
McCulloch Ck Columbia R., B.C.	46
Marmora, tp. of, Hastings co., Ont	38
Montague, Halifax co., N.S.	37, 39
Mooseland, Halifax co., N.S	37
Moss, tp. of, dt. Thunder Bay, Ont	38
Musquodoboit, Halifax co., N.S.	37
Oldham, Halifax co., N.S	37
Partridge L., dt. Thunder Bay, Ont	38
Rawdon, Hants co., N.S.	37
Renfrew, Hants co., N.S.	37
Rock Ck., Kettle R., Okanagan, B.C	47
St. François, Beauce co., Que	38
St. Giles de Beaurivage, Lotbinière co., Que	38
St. Mary's, Guysborough' co., N.S	37
Sheet Harbour, Halifax co., N.S.	37
Snowshoe Mt., Richfield, Cariboo, B.C	38
Tangier, Halifax co., N.S	5, 37
Tudor, tp. of, Hastings co., Ont	38
Upper Stewiacke, Colchester co., N.S	37
Victoria Cape, Jackfish Bay, L. Superior, Ont	38
Waverley, Halifax co., N.S	37
Wine Harbour, Guysborough co., N.S.	37
Wollaston, tp. of, Hastings co., Ont	38
Auriferous rock, Hixon Ck., Fraser R., B.C	47
— — Madoc, tp. of, Hastings co., Ont	39
- Rawdon, tp. of, Montcalm co., Que:	39
Aventurine felspar	
zaromento zoneportiti i i i i i i i i i i i i i i i i i	,

Axinite	Page 20
	14
Azurite	14
7	
В.	
Barite (barytes), from:	
Anse à la Vieille, Bonaventure co., Que	138
Bass R., Cölchester co., N.S	133
Dog L., Frontenac co., N.S	2
Five Islands, Colchester co., N.S	27, 33
Galway, tp. of, Peterborough co., Ont	134
Hull, tp. of, Ottawa co., Que	27, 13-
Iron Isd., L. Nipissing, Ont	27
Judique, Inverness co., N.S.	13:
Lavant, tp. of, Lanark co., Ont	134
McKellar's Isd., L. Superior, Ont.	27
Madoc, tp. of, Hastings co , Ont.	134
Memramcook, Westmoreland co., N.B	133
North Burgess, tp. of, Lanark co., Ont	
Pakenham, tp. of, Lanark co., Ont	134
Ramsay, tp. of, Lanark co., Ont	
Rossport, L. Superior, Ont.	13
Templeton, tp. of, Ottawa co., Que	27
Barytes,—see Barite.	41
Basalt, columnar	164
Bath-brick, material suitable for.	
	162
Beryl	17
Biotite, from:	2.63
Bouchette, tp. of, Ottawa co., Que	141
Ross, tp. of, Renfrew co., Ont.	
Sebastopol, tp. of, Renfrew co., Ont	
Biotite, hydrous	23
Bismuth glance,—see Bismuthinite.	
— minerals,—see Bismuthinite.	
— ore, specimens illustrating the distribution of,	
Bismuthinite, from:	58
Lepreau, Charlotte co., N.B	58
Little Shuswap L., B.C	$\epsilon$
McKenzie R., dt. Thunder Bay, Ont	58
Tudor, tp. of, Hastings co., Ont	6, 58
Bitumen	29
Bituminous coal,—see Coal.	
Bituminous sand-rock, Athabasca River, N.W.T	9, 105
Bituminous shale, Albert Mines, Albert co. N.B.	164
Bituminous shale, Dorchester, Westmoreland co., N.B	105
Black-lead,—see Graphite.	

	Pag	Ω
Blende,—see Sphalerite.	I ag	٥.
Blood-stone, see Heliotrope.		
Blue iron earth,—see Vivianite.		
Blue carbonate of copper,—see Azurite.		
Bog iron-ore, from:		
Ascot, tp. of, Sherbrooke co., Que	*	76
Bastard, tp. of, Leeds co., Ont	67,	76
Bolton, tp. of, Brome co., Que		30
Bois de Ail, Portneuf co., Que	-	66
Brandon Hills, Man		67
Côte St. Charles, Vaudreuil co., Que	67,	76
Darling, tp. of, Lanark co., Ont	. :	30
Eardley, tp. of, Ottawa co., Que		67
Green Isd., Temiscouata co., Que	66,	75
Indian Reserve, Inverness co., N.S		75
Ireland, tp. of, Megantic co., Que		76
Kildare, tp. of, Joliette co., Que	66,	75
Lac la Tortue, Champlain co., Q		12
Lake Aylmer road, Wolfe co., Que		76
L'Acadie, St. John's co., Que		7.5
Leslie, tp. of, Pontiac co., Que		67
Montreal R., dt. Nipissing, Ont		76
Nictaux R., Annapolis co., N.S		66
North Brandon Hills, Man	67,	76
North Elmsley, tp. of, Lanark co., Ont		67
Point du Lac, St. Maurice co., Que		66
Rivière du Chene, co. of Two Mountains, Que		67
Rivière du Sud, Bellechasse co., Que		66
Ste. Angélique, Vaudreuil co., Que	67,	76
Stc. Elizabeth, Joliette co., Que		66
St. Etienne, St. Maurice co., Que	66,	75
St. Félix, Champlain co., Que	66,	75
St. François, Beauce co., Que	67,	76
St. Jérôme, Terrebonne co., Que		66
Ste. Marguerite, Champlain co., Que		66
St. Maurice Forges, St. Maurice co., Que		7.5
Ste. Rose (Rosalie), Lanoraie, Joliette co., Que	66,	75
St. Vallier, Bellechasse co., Que	66,	75
Simpson, tp. of, Drummond co., Que		75
Stanbridge, tp. of, Missisquoi co., Que		76
Texada Island, B.C		13
Thamesville, Kent co., Ont		76
Upper Rocky Point, Eardley, Ottawa co., Que		76
Bog iron-ore, specimens illustrating the distribution of		75

	Page.
Bog manganese, from:	
Amherst Isd., Magdalen Islands, Que	62
French River, Colchester co., N.S	62
La Plaine, seigniory of Cacouna, Temiscouata co., Que	62
Madoc, tp. of, Hastings co., Que	61,62
Richmond, Carleton co., N.B	61
St. George, seigniory of Aubert-Gallion, Beauce co., Que	62
St. Louis road, Quebec, Quebec co., Que	62
Seigniory of Rivière Ouelle, Kamouraska co., Que	61, 62
Bornite (purple copper ore), from:	
Acton, tp. of, Bagot co., Que84, 8	39, 163
Adam's Isd., Charlotte co., N.B	84, 88
Alma, Albert co., N.B	88
Batchehwahnung Bay, L. Superior, Ont	89
Bruce Mines, L. Huron, Ont	7, 89
Cleveland, tp. of, Richmond co., Que	84, 88
Ham, tp. of, Wolfe co., Que	89
Indian Isd., Hamilton Inlet, Labrador	88
Inverness, tp. of, Megantic co., Que	88
Lake Huron, dt. Algoma, Ont	84, 89
Leeds, tp. of, Megantic co., Que	88, 89
Mamainse, L. Superior, Ont	84, 89
Orford, tp. of, Sherbrooke co., Que	89
Pointe aux Mines, L. Superior, Ont	89
Roxton, tp. of, Shefford co., Que	84
Ste. Marguerite, Lotbinière co., Que	84
Salmon Arm, Jarvis Inlet, B.C	84
Sutton, tp. of, Brome county, Que	84, 89
Tupper, tp. of, dt. Algoma, Ont	89
Wendover, tp. of, Drummond co., Que	84
Bournonite, Darling, tp. of, Lanark co., Ont	9
Breccia, Volcanic, Ballinac Isds., B.C	120
Brick clay from:	
Antigonish, Antigonish co., N.S	123
Archville, Nepean, Carleton co., Ont	123
Avonport, King's co., N.S.	123
Beckwith, tp. of, Lanark co., Ont	123
Belleville, tp. Thurlow, Hastings co., Ont	124
Bells Corners, Nepean, Carleton co., Ont	123
Bertie, tp. of, Welland co., Ont	126
Bloomfield, tp. Hallowell, Prince Edward co., Ont	124
Brant, tp. of, Bruce co., Ont	125
Brantford, tp. of, Brant co., Ont.	126
Brockville, Leeds co., Ont.	124
Carlton West, York co., Ont	125
Charlottetown, Queen's co., P.E.I.	123

Brick	clay from:	Page
	Claremont, Cumberland co., N.S	123
	Clinton, tp. of, Lincoln co., Ont.	126
	Coal Banks, Belly River, Alta	
	Crooked Creek, Waterton Lake, Alta	$\frac{127}{126}$
	Cypress Hills, Assa	126
	Darlington, tp. of, Durham co., Ont.	124
	Doncaster, tp. York, York co., Ont.	$\frac{124}{125}$
	Ekfrid, tp. of, Middlesex co., Ont.	126
	Fairville, St. John co., N.B.	120
	Fort Kipp, Old Man River, Alta.	125
	Fredericton, York co., N.B.	123
	Guichon Creek, Nicola River, B.C.	127
	Hamilton, tp. Barton, Wentworth co., Ont.	$\frac{127}{124}$
	Kenyon, tp. of, Glengarry co., Ont.	123
	Kincardine, Bruce co., Ont	$\frac{125}{125}$
	Kingston, Frontenac co., Ont.	120
	Lewisville, Westmoreland co., N.B.	123
	Limehouse, Halton co., Ont.	$\frac{125}{125}$
	London, Middlesex co., Ont	
	McNab, tp. of, Renfrew co., Ont.	$\frac{126}{124}$
	Montreal, Hochelaga co., Que	$\frac{124}{123}$
	Nanaimo, Vancouver Island, B.('	125
	Nassagaweya, tp. of, Halton co., Ont.	$\frac{127}{125}$
	New Edinburgh, Carleton co., Ont.	$\frac{120}{123}$
		125
	New Westminster (Park reserve), B.C.  Otonabee, tp. of, Peterborough co., Ont.	$\frac{127}{124}$
	Owen Sound, Grey co., Ont	124 126
	Parabraka to of Panfrow of Ont	
	Pembroke, tp. of, Renfrew co., Ont.  Penetanguishene, Simcoe co., Ont.	123 124
	Pincher ('reek, Alta	124
		127
	Port Elgin, Bruce co., Ont	123
	Ramsay, tp. of, Lanark co., Ont.	
	Rawdon, tp. of, Hastings co., Ont	124
	Red Deer River, eight miles above Forks of, Assa	126
	Richmond, tp. of Goulburn, Carleton co., Ont.	123
	River Denys, Inverness co., N.S.	123
	Russell, tp. of, Russell co., Ont.	123
	St. Charles River, Quebec, Quebec co., Que	127
	St. Jean, Lotbinière co., Que	123
	St. John's, St. John's co., Que	123
	St. Thomas, Elgin co., Ont.	126
	Salt Springs, Dorchester, Antigonish co., N.S.	122
	South Saskatchewan R., above Medicine Hat, Assa	126
	Stafford, tp. of, Renfrew co., Out	124

	Page
Brick clay from:	105
Stephen, Bruce co., Ont	125
Stony Mountain, Man	126
Three Rivers, St. Maurice co., Que	123
Tilsonburg, Oxford co., Ont	126
Toronto, York co., Ont	125
Treadwell, tp. N. Plantagenet, Prescott co., Ont	127
Victoria, Vancouver Island, B.C.	127
Waterton River, at Dutch Fred's crossing, Alta	127
Westminster, tp. of, Middlesex co., Ont	126
White Mud River, base of Fox Hills, Assa	126
Winnipeg, Man	126
Yamaska, Yamaska co., Que	123
Yorkville, Toronto, York co., Ont	125
Bricks, common	122
— ornamental123, 124	, 125
sand used for making	127
Brines,—Brine from:	
Baddeck, Victoria co., N.S	142
Goderich, Huron co., Ont	142
Kincardine, Bruce co., Ont	142
Nanaimo, Vancouver Isd., B.C	143
Port Franks, Lambton co., Ont	142
Salt Springs, Cumberland co., N.S.	142
Seaforth, Huron co., Ont	142
Brown hematite,—see Limonite.	
Building stones:	
Dolomites	110
Gneisses.	113
Granites	112
Labradorite rock	113
Limestones	107
Sandstones	111
Serpentine.	113
Syenites	113
Trap rock	113
11ap 10ca	1 1 + )
C.	
Cacholong	1 30
Cacoclasite	19
Calcareous tufa, from:	17
Caledon, tp. of, Peel co., Ont	14
Cayuga, tp. of, Haldimand co., Ont.	, 14
Dundas, Wentworth co., Ont.	14
Tobiana Rivar, Viotoria ao N. R.	14

	Page
Calcite.	13, 30
— fibrous	13
— fœtid	13
Cannel coal, Cape Morien, Cape Breton co., N.S	29
Carbonaceous shale	103
Carnelian	146
Celestite, from:	
Bagot, tp. of, Renfrew co., Ont.	7, 134
Forks of the Credit, Peel co., Ont	27
Kingston, Frontenac co., Ont	27
Lansdowne, tp. of, Leeds co., Ont	7, 134
Sydney River, Cape Breton co., N.S	134
Cement, hydraulic, prepared from cement-stone from:	
Arthabaska, Arthabaska co., Que	129
Grantham, tp. of, Drummond co., Que	129
Limehouse, Halton co., Ont	129
Nepean, tp. of, Carleton co., Ont	129
Quebec, Quebec co., Que	128
Cement-stone, raw, from:	120
Goderich, Huron co., Ont	129
Grantham, tp. of, Drummond co., Que.	129
Grand Coupe, Gaspé co., Que	128
Hochelaga, Hochelaga co., Que	129
Kingston, Frontenac co., Ont.	129
Limehouse, Halton co., Ont.	
	129
Nepeau, tp. of, Carleton co., Ont	129
Pakenham, tp. of, Lanark co., Ont.	129
Thorold, Welland co., Ont	129
Cerussite	14
Chabazite	
Chalcedony	10
Chalcocite (vitreous copper ore), from:	
Alma, Albert co., N.B	87
Brisco Range, Rocky Mountains, B.C	88
Dorchester, Westmoreland, co., N.B	87
Etchemin R., Dorchester co., Que	87
French R., Colchester co., N.S	87
Grand Manan Isd., Charlotte co., N.B	84, 87
Halifax, tp. of, Megantic co., Que	84, 87
Lake Huron, dt. Algoma, Ont	7
Leeds, tp. of, Megantic co., Que	84, 88
Mamainse, L. Superior, Ont	88
Minudie, Cumberland co., N.S	87
Pointe aux Mines, L. Superior, Ont	88
Point Porphyry, L. Superior, Ont	88
Pugwash R., Cumberland co., N.S	87
$14\frac{1}{2}$	
1 2	

	Pa	ge
Chalcocite (vitreous copper ore) from:		
St. Ignace Isd., L. Superior, Ont		88
Ste. Marguerite, Lotbinière co., Que		87
Salmon R., Albert co., N.B		83
Silver City, Rocky Mountains, Alta		88
Simpson Isd., Passamaquoddy Bay, N.B		87
Spar Island, L. Superior, Ont		88
Chalcopyrite (copper pyrites), from:		
Acton, tp. of, Bagot co., Que		90
Ascot, tp. of, Sherbrooke co., Que	85,	90
Barford, tp. of, Stanstead co., Que		90
Beckwith, tp. of, Lanark co., Ont	85,	90
Belmont, tp. of, Peterborough co., Ont		91
Bolton, tp. of, Brome co., Que	0, 1	64
Brome, tp. of, Brome co., Que	85,	90
Coxheath, Cape Breton co., N.S	85,	89
Crow Harbour Isd., Charlotte co., N.B		90
Denison, tp. of, dt. Algoma, Ont		91
Drury, tp. of, dt. Algoma, Ont	86,	91
Durham, tp. of, Drummond co., Que		
Echo Lake, dt. Algoma, Ont	86,	91
Escott, tp. of, Leeds co., Ont	85,	91
Gananoque Lake, tp. of Leeds, Leeds co., Ont		85
Garthby, tp. of, Wolfe co., Que	85,	90
Grand Portage, Mississagui R., dt. Algoma, Ont		91
Ham, tp. of, Wolfe co., Que	85,	90
Kootanie River, B.C		86
Lake, tp. of, Hastings co., Ont		91
Lake Huron, dt. Algoma, Ont	86,	91
Lavant, tp. of, Lanark co., Ont		85
Leeds, tp. of, Megantic co., Ont		90
Little Pic River, L. Superior, Ont	86,	92
Lochaber Lake, Antigonish co., N.S	85,	89
McKim, tp. of, dt. Nipissing, Ont	86,	91
Mamainse, L. Superior, Ont		86
Nairn, tp. of, dt. Algoma, Ont		91
New Ireland, Albert co., N.B		90
North Burgess, tp. of, Lanark co., Ont		85
North Elmsley, tp. of, Lanark co., Ont	85,	90
Orford, tp. of, Sherbrooke co., Que	85,	90
Palmerston. tp. of, Frontenac co., Ont	86,	91
Pointe aux Mines, L. Superior, Ont		92
Polson's Lake, Antigonish co., N.S	85,	90
Portlock Harbour, L. Huron, Ont		86
Rat Portage, dt. Rainy River, Ont		92
Root River, dt. Algoma, Ont	86.	91

	Page
Chalcopyrite (copper pyrites) from:	
St. Flavien, Lotbinière co., Que	85, 90
St. Martin's, St. John co., N.B	90
Shefford, tp. of, Shefford co., Que	90
Slate Falls, Slate R., dt. Thunder Bay, Ont	92
Snider, tp. of, dt. Algoma, Ont	86
South Canonto, tp. of, Frontenac co., Ont	91
South Similkameen R., B.C	92
Spanish River, dt. Algoma, Ont	91
Spar Island, L. Superior, Ont	92
Straight Lake, dt. Algoma, Ont	91
Texada Island, B.C	86, 92
Upton, tp of, Drummond co., Que	85
Warwick, tp. of, Athabaska co., Que	90
Waters, tp. of, dt. Algoma, Ont	. 91
Wendover, tp. of, Drummond co., Que	- 85
Whitefish River, dt. Algoma, Ont	86, 91
Wickham, tp. of, Drummond co., Quo	. 85
Woodstock, Carleton co., N.B	. 90
Chemawinite	29, 150
Chert	48, 149
Chiastolite	. 19
Chlorite	. 24
Chlorite compact.—see Potstone.	
Chloritoid	. 24
Chondrodite	. 20
Chromic iron,—see Chromite.	10.01
Chromiferous garnet	. 18, 31
Chromiferous mica	. 25
Chromite (chromic iron), from:	. 56
Bolton, tp. of, Brome co., Que	. 50 . 50
Cleveland, tp. of, Richmond co., Que	. 60
Coleraine, tp. of, Megantic co., Que	
Leeds, tp. of, Megantić co., Que	56 60
Mount Albert, Gaspé co., Que	60 16
South Ham, tp. of, Wolfe co., Que	. 60
Thetford, tp. of, Megantic co., Que	
Chromium oré, specimens illustrating the distribution of	. 18
Chrysolite	25 35
Chrysotile	. 20, 0
Cinnabar, from:	. 7, 30
Copper Ck., Kamloops L., B.C	. , ,
Hector Pass, Rocky Mtns., B.C.	
Homathco River, B.C.	
Seshart Channel, Vancouver Isd., B.C	. 1
Cinnamon stone	

	Page
Clay, brick,—see Brick clays.	
— fire,—see Fire clay.	
— pottery,—see Pottery clay.	
— used as a pigment	133
Clay iron-stone, from:	
Bad Lands, south of Wood Mtn., Assa	
Battle R., ridge south of, Alta	
Big Island, Belly River, Alta	
Coal Banks, Belly River, Alta	
Comox, Vancouver Isd., B.C	
Cow Bay, Cape Breton co., N.S	
Cowgitz, Queen Charlotte Isds., B.C	
Dirt Hills, Assa	
Drift-wood Bend, Belly River, Alta	
East Butte, Assa	
East River, Pictou co., N.S.	
Edmonton, Alta	
Fort Pelly, fifteen miles south of, Assa	
Grassy Island, Bow River, Alta	
Great Valley, Assa	
Kananaskis River, Alta	
Middle Bluff, Dirt Hills, Assa	
Mill Ck., Old Man R., Alta	
North Saskatchewan River, Alta	
Pembina River, Man	
Prairie Island, Bow River, Alta	
Queen Charlotte Islands, B.C	
Quesnel, B.C	
Rapid River, Alta	
Red Deer River, Alta	
Skidegate Inlet, Queen Charlotte Isds., B.C	
Smoky River, Atha	
Souris City, Souris River, Man	
Souris River, Assa	
South Joggins, Cumberland co., N.S	
Springhill, Cumberland co., N.S	
Tar Point, Douglas, Gaspé co., Que	
White Mud River, twelve miles east of, Assa	77
Coal, of the Carboniferous system, from:	7.0.4
Acadia Colliery, Pictou co., N.S	
Acadia Mines, Pictou co., N.S.	
Albion Mines, Pictou co., N.S.	
Block House mine, Cape Breton co., N.S	
Caledonia mine, Cape Breton co., N.S	
Drummond Colliery, Pictou co., N.S	
Emery mine, Cape Breton co., N.S	104

	Page
Coal of the Carboniferous system, from:	
Gardiner mine, Cape Breton co., N.S	104
Joggins mine, ('umberland co., N.S	104
Kelly Cove, Cape Breton co., N.S	104
Lingan mine, Cape Breton co., N.S	104
Little Glace Bay mine, Cape Breton co., N.S	104
Lorway mine, Cape Breton co., N.S	104
Marsh Colliery, Pictou co., N.S	104
Montreal and New Glasgow Coal Co.'s mine, Pictou co., N.S	104
Schooner Pond mine, Cape Breton co., N.S	104
Springhill Mines, Cumberland co., N.S	104
Sydney Mines, Cape Breton co., N.S	104
Vale Colliery, Pictou co., N.S	104
Victoria mine, Cape Breton co., N.S	104
Coal of Cretaceous and Laramie age, from:	
* Beaver Harbour and Alert Bay, between V. I., B.C	101
Bow R., (Vaughan's mine) Alta	100
Coal Creek, Bow River, Alta	100
— Crow Nest Pass, Rocky Mtns., B.C	100
North Thompson River, B.C	101
Coal Harbour, Quatsino Sound, V.I., B.C	101
Comox, Vancouver Island, B.C	101
Crow Nest Pass, Rocky Mtus., B.C	100
Departure Bay, Vancouver Isd., B.C	101
Elk River, Crow Nest Pass, Rocky Mtns., B.C	100
Forward Inlet Quatsino Sound, V.I., B.C	101
Ki-uk River, Vancouver Island, B.C	101
Klik si-wi River, Vancouver Island, B.C	101
Marten Creek, Crow Nest Pass, Rocky Mtns., B.C	100
Mill Creek, Alta	100
Mill and Pincher Cks., near headwaters of, Alta	100
Nanaimo, Vancouver Island, B.C	101
Newcastle Island, nr. Nanaimo, V. I., B.C	101
North Kootanie Pass, Rocky Mtns., B.C	100
Old Man River, South Fork, Alta	99
Middle Fork, Alta	99
- North Fork, Alta	99
Oyster Ck., North Fork, Old Man River, Alta	99
Pincher Creek, Old Man River, Alta	100
Red Deer River, Rocky Mtns., Alta	100
Rupert Arm, Quatsino Sound, V.I., B.C	101
St. Mary River, Alta	99
Sheep Creek, South Fork of, Alta	100
Skidegate Inlet, Queen Charlotte Isds., B.C	102
Snouash, Vancouver Island, B.C	101
Upper Belly River, Alta	99
37 town Divon Chuham Island B.C.	102

	Pag	ge
Coal, lignitic,—see Lignitic coal.		
Coal oil,—see Petroleum.		
Cobalt minerals,—see Danaite, smaltite.		
Coke, from peat		93
Coke, from petroleum, hard and soft	10	05
Collection of economic minerals and rocks		35
Concretionary nodule, Kaministiquia R., Ont	1	64
Cookeite		23
Copper, Minerals and ores of:		
Copper, Native	83,	86
Azurite		14
Blue carbonate of copper,—see Azurite.		
Bornite	84,	88
Chalcocite	83,	87
Chalcopyrite	85,	89
Copper glance,—see Chalcocite.		
Copper pyrites,—see Chalcopyrite.		
Cuprite		11
Green carbonate of copper,—see Malachite.		
Grey copper,—see Tetrahedrite.		
Malachite		14
Purple copper-ore,—see Bornite.		
Red copper-ore,—see Cuprite.		
Tetrahedrite9,	50,	89
Vitreous copper ore,—see Chalcocite.		
Yellow copper-ore,—see Chalcopyrite.		
Copper, Native, from:		
Bennet's Brook, Cumberland co., N.S		87
British Columbia		83
Eleven-mile Creek, Fraser River, B.C		87
Fraser River, B.C	6,	87
Horse-shoe Cove, Cumberland co., N.S	'5,	86
Lake Superior, Ont	83,	87
Mamainse, L. Superior, Ont	83,	87
Michipicoten Isd., L. Superior, Ont	83,	87
Minas Basin, Cumberland co., N.S		5
Nipigon Bay, Lake Superior, Ont		83
St. Ignace Isd., L. Superior, Ont		5
Sooke, Vancouver Island, B.C	83,	87
Thibert's Creek, Cassiar, B.C		87
Two Islands, Cumberland co., N.S	5,	86
Vermilion Forks, Similkameen R., B.C		87
Vital Creek, Omenica district, B.C		6
Copper ores, specimens illustrating the distribution of		86
Cuprite		11
Cyanite	<u>1</u> 9,	32

# D.

D.	
	Page
Danaite	8
Dawsonite	14, 30
Delessite	24
Diallage	
Diopside	
Diorite, as an ornamental stone.	
Dog-tooth spar	30, 34
Dolomite	4, 110
Dolomite, as a building stone, from:	
Aldfield, tp. of, Pontiac co., Que	110
Ancaster, tp. of, Wentworth co., Ont	110
Barton, tp. of, Wentworth co., Ont	110
	110
Beckwith, tp. of, Lanark co., Out	
Bell's Corners, Carleton co., Ont	11()
Calumet Island, Pontiac co., Que	110
Cayuga, tp. of, Haldimand co., Ont	110
Coboconk, Victoria co., Ont	110
Grimsby, Lincoln co., Ont	110
McNab, tp. of, Renfrew co., Out	110
Owen Sound, Grey co., Ont	110
Pelee Island, L. Erie, Ont	110
Red River, above Stone Fort, Man	110
	110
Rockwood, tp. of, Wellington co., Ont	110
Selkirk, Man	
Stony Mountain, Man	110
Drain tiles	
Dyssyntribite	23
E.	
Epidote	46 147
Epidote	28
Epsomite	20
Epsom salt, prepared from magnesite from Bolton	134
Essonite	18
F.	
The second of th	139
Felsite, as a refractory (fire resisting) material	100
Felspar.	46 140
Albite	46, 149
Andesine	15, 164
Anorthite	1.5
Aventurine	15, 149
Labradorite	47, 149
Microcline	39, 150
Oligoclase	31, 150
Orthoclase	49, 150
Orthoclase, 51,	, , , , , ,

	Page
Felspar, for porcelain	139
Ferruginous clay, used as a pigment	133
— dolomite, used as a pigment	133
rock do do	133
Fibrolite	19
Fine arts, Minerals applicable to	145
Fire-clay, from:	
Dundas, tp. of, Wentworth co., Ont	139
Grand Lake, Queen's co., N.B	139
Souris City, Souris River, Man	139
Flooring tiles10	7, 123
Fluorite (fluor-spar) from:	
Barton, tp. of, Wentworth co., Ont	9
Fluor Island, L. Superior, Ont	9
Hull, tp. of, Ottawa co., Que	9
McKenzie's River, dt. Thunder Bay, Ont	9
Ross, tp. of, Renfrew co., Ont	9
Templeton, tp. of, Ottawa co., Que'	9
Villeneuve, tp. of, Ottawa co., Que	, 9
Fluor-spar,—see Fluorite.	
Fætid calcite	13
Fossil fuel	93
Anthracite	102
Anthracite, semi,—see semi-anthracite.	
Anthracitic coal	102
Cannel coal	29
Coal of the Carboniferous system	103
Coal of Cretaceous and Laramie age	99
Lignite	93
Lignitic coal	98
Lignitified wood	93
Peat	93
G.	
Galena,—see Galenite.	
Galenite (galena). For the most part more or less argentiferous—some	
highly so—from:	
Acton, tp. of, Bagot co., Que	50
Ascot, tp. of, Sherbrooke co., Que	52
Barrie, tp. of, Frontenac co., Ont.	51
Bedford, tp. of, Frontenac co., Ont	
Boulder Creek, Omenica, B.C	47
Boulder Isd., Lake of the Woods, Ont	54
Brome, tp. of, Brome co., Que	52
Buckingham, tp. of, Ottawa co., Que	51, 53

Galenite (galena), from:		Pa	ge
Calumet, tp. of, Pontiac co., Que			-
Cap Bon Ami, Gaspé co., Que		50	50)
Cook's Corner, Missisquoi co., Que			
Copper Ck., East Kootanie dt., B.C.		υ,	42
Dalhousie, tp. of, Lanark co., Ont			53
Deception Ck., East Kootanie dt., B.C.			42
Dorion, tp. of, dt. Thunder Bay, Ont			51
Duhamel, tp. of, Pontiac co., Que		51	
Fitzroy, tp. of, Carleton co., Ont.			
Galway, tp. of, Peterborough co., Ont		17.4.9	51
Garden River, dt. Algoma, Out.		51.	
Grande Grève, Gaspé co., Que		,	52
Granite Isd., Black Bay, L. Superior, Out			53
Illecillewaet district, B.C		44.	
Illecillewaet River, B.C.		,	44
Indian Cove, Gaspé co., Que		50,	52
Island No. 2, Silver L., dt. Thunder Bay, Ont			53
. Kokesaila R., Vancouver Isd., B.C			52
Kootanie Lake, east side, B.C.			44
Kootanie Lake, west side, B.C			43
Lake Temiscamingue, dt. Nipissing, Ont			51
Lansdowne, tp. of, Leeds co., Ont		51,	53
Limerick, tp. of, Hastings co., Ont			
Little Pic River, dt. Thunder Bay, Ont			
Little Whale River, dt. Thunder Bay, Ont			
Loughborough, tp. of, Frontenac co., Ont			51
McDame Creek, Cassiar, B.C			47
McIntyre, tp. of, dt. Thunder Bay, Ont			-7
McMurdo district, B.C			42
McTavish, tp. of, dt. Thunder Bay, Ont		51,	53
Michipicoten Isd., L. Superior, Ont			53
Mill Stream, Gloucester co., N.B		50,	52
Milton, tp. of, Shefford co., Que			52
Mosquito Creek, Cariboo, B.C			47
Mount Stephen, Rocky Mtns., B.C	.41,	42,	54
Nigadoo R., Gloucester co., N.B		50,	
O'Connor, tp. of, dt. Thunder Bay, Ont			52
Otter-tail Creek, Rocky Mtns., B.C			54
Owls Head, Brome co., Que			.52
Percé, Gaspé co., Que			52
Pie Island, L. Superior, Out			52
Pointe aux Mines, L. Superior, Ont		51,	53
Potton, tp. of, Brome co., Que			52
Ramsay, tp. of, Lanark co., Ont		51,	53
Richmond Gulf, Hudson Bay			53

	Page
Galenite (galena), from:	
Risborough, tp. of, Beauce co., Que	
Rock Creek, Kettle River, B.C	47
St. Armand, Missisquoi co., Que	50, 52
St. Fabien, Rimouski co., Que	50, 52
Sibley, tp. of, dt. Thunder Bay, Ont	52
Silver Islet, Lake Superior, Ont	7, 52
Silver Lake, tp. McTavish, dt. Thunder Bay, Ont	51, 53
Snider, tp. of, dt. Algoma, Ont	53
Storrington, tp. of, Frontenac co., Ont	53
Toby Creek, East Kootanie dt., B.C	42
Tudor, tp. of, Hastings co., Ont	51, 53
Upton, tp. of, Bagot co., Que	50, 52
West Kootanie district, B.C	45, 46
Galenite, specimens illustrating the distribution of	52
Garnet	31, 149
Almandite	18
Andranite	18
Chromiferous	18, 31
Essonite.	
Grossularite	
Spessartite	18
Gaspé pebbles.	146
Geology, structural and phenomenal, specimens illustrating	167
Gersdorflite.	8
Glass-making, quartz for,—see Quartz.	(,
— sand for,—see Sand.	
= sandstone for,—see Sandstone.	
- santistone for,—see Santistone.	25
Gmelinite	20 22
	22
Gneiss, as a building stone,—from:	110
Grenville, tp. of, Argenteuil co., Que	113
St. Charles reservoir, Jeune Lorette, Quebec co., Que	113
Gneiss, as an ornamental stone	17, 148
Gold, alluvial,—see Placer gold.	
Gold in dolomite, tp. Leeds, Megantic co., Que	5, 39
Gold in hematite, Clinton, B.C	5
Gold, Minerals and ores of:	
Placer gold	39
Quartz gold,—see Auriferous quartz.	
Sulphuret gold ores,—see Auriferous mispickel.	
Sylvanite	8, 49
Telluride ore,—see Sylvanite.	
Gold, Native, separated from gangue,—from:	
Elzevir, tp. of, Hastings co., Ont	39
Hungerford, tp. of, Hastings co., Ont	39
Madoc, tp. of, Hastings co., Ont	39

	Page
Göthite	12
Granite, as a building stone,—from:	
Barnston, Stanstead co., Que	112
Fraser River, B.C	113
Nelson Isd., Jervis Inlet, B.C	112
Otter Cove, Discovery Passage, B.C.	113
Port Harvey, Cracroft Isd., Johnstone Strait, B.C	112
St. George, Charlotte co., N.B	163
St. Joseph, Beauce co., Que	112
Granite, column and vase of, polished	163
Graphic tellurium,—see Sylvanite.	
Graphite (plumbago, black-lead), from:	- 10=
Alkow Harbour, Dean Canal, B.C	
Beresford, tp. of, Terrebonne co., Que	136 5
Bowman, tp. of, Ottawa co., Que	
Buckingham, tp. of, Ottawa co., Que	5 197
Darling, tp. of, Lanark co., Ont	5 126
Denbigh, tp. of, Addington co., Ont	137
Fraser River, B.C.	
Grenville, tp. of, Argenteuil co., Que	5 136
Augmentation of, Argenteun co., Que	5 137
Lochaber, tp. of, Ottawa co., Que	137
North Elmsley, tp. of, Lanark co., Ont	
St. John, St. John co., N.B	4. 136
Skuzzy Creek, Fraser River, B.C.	136
South Burgess, tp. of, Leeds co., Ont	
Wakefield, tp. of, Ottawa co., Que	136
Westmeath, tp. of, Renfrew Co., Ont	137
Graphite, articles manufactured from	135
— mineral associations of	137
— specimens illustrating the distribution of	136
Green carbonate of copper,—see Malachite.	
Green vitriol,—see Melanterite.	
Grey antimony,—see Stibnite.	
Grey copper,—see Tetrahedrite.	
Grindstones, made from sandstone, from:	
Allumette Rapids, Renfrew co., Ont	160
Bay of Chaleurs, Bonaventure co., Que	160
Clifton, Gloucester co., N.B	160
Nanajino, Vancouver Island, B.C	161
Pembroke, Benfrew co., Ont	60, 161
Grossularite	18, 31
Gummite	27

	Page
Gypsum, from:	
Alright Isd., Magdalen Islands, Que	130
Amherst Isd., Magdalen Islands, Que	130
Antigonish, Antigonish co., N.S	152
Beaver Brook, Colchester co., N.S	, 152
Black River, Cumberland co., N.S	130
Black Rock, Colchester co., N.S	33
Blomidon, King's co., N.S	, 130
Bras d'Or Lake, Victoria co., N.S	129
Brooklyn, Hants co., N.S	130
Cape Blomidon, King's co., N.S33	, 130
Falmouth, Hants co., N.S	, 130
Grandique, Richmond co., N.S	129
Grand River, Haldimand co., Ont131	, 164
Grindstone Isd., Magdalen Islands, Que	130
Hamilton Mtn., Wentworth co., Ont	33
Hillsborough, Albert co., N.B	, 131
Irvine, vicinity of, Assa	28
Lake St. Martin, Man	, 131
Maitland, Hants co., N.S	130
Moose River, 38 miles above Moose Factory, dt. Algoma	131
Mount Healy, Haldimand co., Ont	152
Newport, Hants co., N.S	130
Niagara Falls, Welland co., Ont	28
Oneida, Haldimand co., Ont131	, 152
Oxford, Cumberland co., N.S,	
Paris, Brant co., Ont	, 152
Peace Point, Peace River, Atha	131
Pembina Mountain, Man	28
Petitcodiac, Westmoreland co., N.S	152
Plaster-cliff, Tobique R., Victoria co., N.B	130
Plaster Cove, Wallace Hbr., Cumberland co., N.S	130
Pyramid Valley, Assa	28
St. Ann's Bay, Cape Breton co., N.S	, 129
Salmon River, British Columbia	131
Salt Springs station, Cumberland co., N.S	130
South Saskatchewan R., Assa	28
Spence's Bridge, Thompson R., B.C	131
Springhill, Cumberland co., N.S	28
Summerville, Hants co., N.S	130
Three-mile Plains, Hants co., N.S	130
Walton, Hants co., N.S	130
Wentworth, Hants co., N.S	130
Windsor, Hants co., N.S	, 152

## H.

	Pag	ge
Halite,—see Salt, Common.		
Halotrichite		28
Harmotome		21
Heavy-spar,—see Barite.		
Heliotrope	16, 1	49
Hematite (see also under Micaceous iron ore and Specular iron), from:		
Acadia Mines, Colchester co., N.S		73
Alvira Bay, L. Superior, Ont		74
Amherst Isd., Magdalen Islands, Q		73
Area 45 (Blanchards), Pictou co., N.S.		72
- 100 East River, Pictou co., N.S		73
- 108 East River, Pictou co., N.S.		73
Bastard, tp. of, Leeds co., Ont		74
Batchehwahnung Bay, dt. Algoma, Ont		11
Beccaguimic River, Carleton co., N.B		73
Beckwith, tp. of, Lanark co., Ont		73
Belmont, tp. of, Peterborough co., Ont		74
Big Pond, Cape Breton co., N.S.		72
Black Island, Lake Winnipeg, Man	65,	
Blanchard area, Pictou co., N.S.		72
Breac Brook, East Bay, Cape Breton co., N.S		72
Clarendon, tp. of, Pontiac co., Que		73
Coffin, tp. of, dt. Algoma, Ont	1	74
Dalhousie, tp. of, Lanark co., Ont	υ.,	73
Darling, tp. of, Lanark co., Ont	6.1	
East River, Pictou co., N.S.	0+,	73
Flagstaff Hill, Carleton co., N.B		72
Gallas Point, Prince Edward Island		
Iron Island, L. Nipissing, Ont	ω,	73
Iron-ore Hill, Carleton co., N.B.	455	
Jacksontown, Carleton co., N.B.	(),,	73
Jacksonville, ('arleton co., N.B	65	
Leeds, tp. of, Leeds co., Ont	65	71
Loch Lomond, Cape Breton co., N.S	00,	72
Loon Lake, dt. Thunder Bay, Ont		74
Loran Beach, Cape Breton co., N.S		72
McNab, tp. of, Renfrew co., Ont.	65.	
McTavish, tp. of, dt. Thunder Bay, Ont	65	74
Madoc, tp. of, Hastings co., Ont	65	74
Marmora, tp. of, Hastings co., Ont	00,	74
Marmora, tp. or, Hastings co., Ont		73
Nictaux River, Annapolis co., N.S	65.	
Oso, tp. of, Frontenac co., Ont	00,	74
Silver Lake, tp. McTavish, dt. Thunder Bay, Ont	11.	
South Canonto, tp. of, Frontenac co., Ont	,	74
South Canonto, tp. 01, Frontenac co., Ont		

	Page
Hematite, from:	
South Crosby, tp. of, Leeds co., Ont	74
Talon Chute, tp. Olrig, dt. Nipissing, Ont	74
Teny Cape, Hants co., N.S.	72
West Flamborough, tp. of, Wentworth co., Ont	11 72
Whykokomagh, Cape Breton co., N.S	72
Hematite, brown,—see Limonite.	82
Hematite, mineral associations of	
- specimens illustrating the distribution of	72 133
Heulandite	21
Hisingerite	25
Hones,— see Whetston es.	20
Hornblende	1= 21
Horustone	149
Howlite.	27
Huronite	15
Huronite, as an ornamental stone	148
Hyalite	11
Hypersthene	
V A	0, 101
I.	
Iceland-spar	30
Idocrase, -see Vesuvianite.	
Ilmenite (titanic iron-ore), from:	
Bay St. Paul, Charlevoix co., Que	34, 78
Brome, tp. of, Brome co., Que	
Chateau Richer, Montmorency co., Que	64, 78
Chegoggin Point, Yarmouth co., N.S	12
Rapid R., Bay of Seven Isds., Saguenay co., Que	
St. Irénée, Charlevoix co., Que	64, 78
St. Jérôme, Terrebonne co., Que	78
St. Julien, tp. of, Rawdon, Montcalm co., Que	78
St. Urbain, Bay St. Paul, Charlevoix co., Que	
Sutton, tp. of, Brome co., Que	
Wexford, tp. of, Terrebonne co., Que	78
Ilvaite	20
Infusorial earth, from:	
Almonte, tp. Ramsay, Lanark co., Ont	161
Burrard Iulet, vicinity of, B.C	161
Folly Lake, Colchester co., N.S.	161
Fountain Lake, Cumberland co., N.S	
Loon Lake, B.C.	11
Merigonish, Pictou co., N.S.	161
Petewahwa River, dt. Nipissing, Ont	161
Pollet River Lake, King's co., N.B	161

Iron alum,—see Halotrichite.	Page
Iron, meteoric.	1.00
Iron, Minerals and ores of:	163
Bog iron-ore	0 ===
Chromic iron,—see Chromite.	6, 75
Chromite	701
Clay iron-stone	, 164
Göthite	
Hematite	12
Ilmenite	4, 72
Ilvaite	
Iron, Native	20
- ochre	6
<ul><li>ochre</li><li>pyrites,—see Pyrite.</li></ul>	131
— sand	2, 79
Limonite	5, 75
Magnetic iron ore,—see Magnetite.	
Magnetic pyrites,—see Pyrrhotite.	
Magnetite	, 164
Marcasite	8
Martite	12
Melanterite	28
Meteoric iron	163
Micaceous iron ore	2, 72
Pyrite	5, 61
Pyrrhotite	4, 58
Siderite	7, 76
Spathic iron,—see Siderite.	
Specular iron ore	1, 72
Titanic iron ore,—see Ilmenite.	
Turgite	12
Vivianite	27
Iron, Native, St. Joseph Island, Lake Huron, Ont	6
Iron ochres, from:	
Cap de la Magdeleine, Champlain co., Que131,	132
Carleton, Bonaventure co., Que	131
Conestogo, Waterloo co., Ont	132
Côte St. Charles, Vaudreuil co., Que	131
Hull, tp. of, Ottawa co., Que	132
Leslie, tp. of, Pontiac co., Que	132
Nottawasaga, tp. of, Simcoe co., Ont	132
Pointe du Lac, St. Maurice co., Que	132
Pudsey's Point, Cumberland co., N.S	131
Red Bank, Northumberland co., N.B	131
Ste. Anne de Montmorenci, Montmorency co., Que	132
Ste. Elizabeth, Joliette co., Que	132
15	

	Page
Iron ochres, from:	200
Ste. Marguerite, St. Maurice co., Que	132
Ste. Rose (Rosalie), Lanoraie, Joliette co., Que	132
Silver Creek, Harrison Lake, B.C	
Stanstead, tp. of, Stanstead co., Que	132
Walsingham, tp. of, Norfolk co., Ont	132
Iron ochres, pigments prepared from	131
Iron ochres, used as pigments	131
Iron pyrites,—see Pyrite.	
Iron pyrites, magnetic.—see Pyrrhotite.	
Iron sand, from:	
Amherst Isd., Magdalen Islands, Que	79
Batiscan, Champlain co., Que	
Bersimis, Saguenay co., Que	
Cape Commercell, Vancouver Isd., B.C	72
Hanlan Isd., Toronto Bay, York co., Ont	79
Little Whale River, east coast of Hudson Bay	79
Mingan, Saguenay co., Que	1, 79
Moisie, Saguenay co., Que	1, 79
Natashquan, Saguenay co., Que.	64
Portneuf, Saguenay co., Que 64	1, 79
Iron-stone, clay,—see Clay iron-stone.	
J.	
Jamesonite	9
Jasper	
Jasper conglomerate	
- block of, polished	164
— column of, polished	163
- slab of, polished	120
- vase of, polished	146
Jewellery, minerals applicable to,—see Minerals applicable to the fine arts	
and jewellery.	
K.	
Kaolinite	25
Kaolinite, ordinary (common kaolin), from:	
Grande Frenière, county of Two Mountains, Que	25
Wentworth, Hants co., N.S	
	8, 57
Kerosene,—see Petroleum.	,

L.

	Page
Labradorite15, 146, 147	*
— vase of, polished	146
- rock (as a building stone)	113
Laumontite	21
Lazulite	27
Lead, ore of,—see Galenite.	
specimens illustrating distribution of	52
Lepidomelane	24
Lignite, from:	
Athabasca R., above Fort Assiniboine, Alta	98
Battle River, Alta	96
Blackfoot Crossing, Bow River, Alta	95
Black Mud R., nr. Edmonton, Alta	97
Blackwater Depot, Blackwater R., B.C	98
Bow River, Blackfoot Crossing, Alta	95
— Grassy Island, Alta	95
— Horse-shoe Bend, Alta	95
- at mouth of Highwood R., Alta	95
Bull Pound Creek, Alta	96
Burnt River, Peace River, Atha	98
Chin oo-kun-dl Creek, Graham Isd., B.C	98
Coal Brook, Missinaibi R., dt. Algoma, Ont	94
Pine River, B.C	98
Crowfoot Creek, Bow River, Alta	95
Cypress Hills, Assa	95
Dirt Hills, Assa	94
Devils Pine ('reek, Alta	96
Egg Creek, N. Saskatchewan R., Alta	96
Fort George, Fraser River, B.C	98
Fraser River, Fort George, B.C	98
Grassy Island, Bow River, Alta	95
Great Valley, Assa	94
Hand Hills, Alta	96
Hay Flat, Wood Mountain, Assa	94
Horse-shoe Bend, Bow River, Alta	95
Irvine, half a mile south of, Assa	94
Knee Hills Creek, Alta	97
LaRoche Percée, Souris River, Assa	94
Little Bow River, Alta	95
Mackenzie River, N.W.T	98
Medicine Hat, S. Saskatchewan R., Assa	95
Medicine Hat, S. Saskatchewan IV., 1886.  Meeting Creek, Battle River, Alta	96
Missinaibi River, dt. Algoma, Ont	93
Nicola and Coldwater Rivers, at junction of, B.C.	98
Nicola and Coldwater Elvers, at Junetion of, B.C.	

Lignite, from:	Fage
Lignite, from: North Saskatchewan R., Alta	96 97
- above Edmonton, Alta	97
- below Ferry at Edmonton, Alta	97
- below mouth of the Brazeau, Alta	98
- between Rocky Mountain House and	00
Edmonton, Alta	97
- near Conjuring Creek, Alta	97
- near Victoria, Alta	97
Old Man River, Rye Grass Flat, Alta	96
Pine River, Coal Brook, B.C.	98
Porcupine Creek, Assa.	94
Rat River, Rocky Mtns., N.W.T	98
Red Deer River, Alta	
- above Tail Creek, Alta	97
below Tail Creek, Alta.	97
- ridge W. of Bull Pound Ck., Alta.	96
Ross Coulée, Irvine, Assa	94
Rye Grass Flat, Old Man River, Alta	96
St. Mary River, Alta	95
Saskatchewan R., see North and South Saskatchewan R.	30
	95
Scabby Butte, Alta. Short Creek, Souris Valley, Assa.	94
	98
Skon-un Point, Graham Isd., B.C. Smoky R., below Little Smoky R., Atha.	98
Souris R., nr. LaRoche Percée, Assa	94
- at Traders Road Crossing, Assa	94
- nr. Wood-end Depôt, Assa	94
Souris Valley, Assa.	94
South Saskatchewan River, Assa	95
Sullivan Lake, north of, Alta.	96
Swan River, Man.	94
The Maples, Battle River, Alta.	96
Turtle Mountain, Man.	94
Vermilion River, Alta	97
White Mud River, Assa	94
Willow Creek, Cypress Hills, Assa	95
Ya-kan Point, Graham Island, B.C.	98.
Lignite, ashes resulting from slow combustion of	103
— material resulting from slow combustion of	103
- shaly parting from seam of	103
Lignitic coal, from:	100
Belly River, at Coal Banks, Alta	98
— below Coal Banks, Alta.	98
— below mouth of Little Bow R., Alta	98
- at mouth of St. Mary R., Alta	98
- at mouth of St. Mary N., Alta	90

	Page
Lignitic coal, from:	
Coal Banks, Belly River, Alta	98
Coal Gully, Nicola River, B.C.	99
Elk River, Peace River dt., N.W.T	99
Indian Farm, S. of Pincher Ck., Old Man R., Alta	99
Lewes River, N.W.T	99
N. Saskatchewan R., at mouth of Clearwater, Alta	99
— below mouth of Clearwater, Alta	99
Pincher Creek, Old Man River, Alta	99
Red Deer River, nr. outer edge of Foot Hills, Alta	99
Wapiti River, Peace River district, N.W.T	99
Lignitified wood, Swan River, Man	93
Lime, common, prepared from limestone from:	
Cayuga, Haldimand co., Ont	128
Colborne, tp. of, Huron co., Ont	128
Dudswell, tp. of, Wolfe co., Que	127
Dundas, Wentworth co., Ont	128
Eramosa, tp. of, Wellington co., Ont	. 128
Galt, Waterloo co., Ont	128
Guelph, Wellington co., Ont	128
Horton, tp. of, Rentrew co., Ont	128
Hull, Ottawa co Que	127
Kincardine, Bruce co., Ont	128
Lanark, tp. of, Lanark co., Ont	128
Limehouse, Halton co., Ont	128
McNab, tp. of, Renfrew co., Ont	128
Montreal, Hochelaga co., Que	127
Pugwash, Cumberland co., N.S	127
Ramsay, tp. of, Lanark co., Ont	7, 128
Ross, tp. of, Renfrew co., Ont	128
St. Armand, Missisquoi co., Que	127
St. John's, St. John's co., Que	127
St. Mary's, Perth co., Ont	128
Walkerton, Bruce co., Ont	128
Lime, hydraulic,—see Cement, hydraulic.	
Limestone, as a building stone (see also Marbles), from:	
Barrie, tp. of, Frontenac co., Ont	109
Belleville, tp. Thurlow, Hastings co., Ont	109
Bridgewater, tp. Elzevir, Hastings co., Ont	109
Caughnawaga, Laprairie co., Que	108
Deschambault, Portneuf co., Que	107
Dudswell, tp. of, Wolfe co., Que	107
Gloucester, tp. of, Carleton co., Ont	108
Grenville, tp. of, Argenteuil co., Que	108
Hawkesbury East, tp. of, Prescott co-, Ont	108
Hog Lake, tp. Huntingdon, Hastings co., Ont	109
LAUG LINEO, UPI III COLONIA CO	

	Page
Limestone, as a building stone (see also Marbles), from:	
Horton, tp. of, Renfrew co, Out	109
Hull, tp. of, Ottawa co., Que	108
Joliette, Joliette co., Que	107
Kingston, Frontenac co., Ont	109
La Chevrotière, Portneuf co., Que	107
Lachute, Argenteuil co., Que	108
Lake Manitoba, Man	109
Lanark, tp. of, Lanark co., Ont.	108
McNab, tp. of, Renfrew co., Ont	108
Madawaska R., tp. Blythfield, Renfrew co., Ont	109
Madoc, tp. of, Hastings co., Ont	109
Marmora, tp. of, Hastings co., Ont	109
Metlah-Catlah Bay, B.C	109
Mistassini R., Chicoutimi co., Que	107
Montreal, Hochelaga co., Que	108
Mount Mark, Vancouver Isd., B,C	109
Parrsborough, Cumberland co., N.S	107
Pointe aux Trembles, Portneuf co., Que	-107
Pointe Claire, Jacques Cartier co., Que	107
Portage du Fort, Pontiac co., Que	108
Ramsay, tp. of, Lanark co., Ont	108
Ross, tp. of, Renfrew co., Ont	108
St. Armand, Missisquoi co., Que	108
St. Dominique, Soulanges, Que	108
St. John's, St. John's co., Que	108
St. Lin, L'Assomption co., Que	107
St. Mary's, Perth co., Ont	109
Texada Isd., Strait of Georgia, B.C	109
Wolfe Isd., River St. Lawrence, Frontenac co., Ont	107
Limestone, used for making lime,—see Lime, common.	
Limestone, columns of, polished	163
Limestone conglomerate	), 148
Limonite (brown hematite), from:	
Acadia Mines, Colchester co., N.S	66, 75
Area 46, East River, Pictou co., N.S	75
Area 105, East River, Pictou, co., N.S	75
Ascot, tp. of, Sherbrooke co., Que	76
Bastard, tp. of, Leeds co., Ont	76
Brandon Hills, Man	76
Brookfield, Colchester co., N.S	66, 75
Cape Enragé, Albert co., N.B	75
Côte St. Charles, Vaudreuil co., Que	76
Cumberland Brook, Colchester co., N.S	36, 75
East River, Pictou co., N.S	
Fraser-Saddler area, Picton co., N.S	75

	Page
Limonite (brown hematite), from:	
Green Island, Temiscouata co., Que	75
Indian Reserve, Inverness co., N.S	75
Ireland, tp. of, Megantic co., Que	76
Kildare, tp. of, Joliette co., Que	75
Lake Aylmer Road, Wolfe co., Que	76
L'Acadie, St. John's co., Que	75
Londonderry, Colchester co., N.S	66, 75
Martin's Brook, Colchester co., N.S	19
Montreal River, dt. Nipissing, Ont	76
Sce. Angélique, Vaudreuil co., Que	76
St. Etienne, St. Maurice co., Que	75
St. Félix, Champlain co., Que	75
St. Francois, Beauce co., Que	76
St. Maurice Forges, St. Maurice co., Que	75
Ste. Rose (Rosalie), Lanoraie, Joliette co., Que	75
St. Vallier, Bellechasse co., Que	19
Simpson, to, of Drummond co., Que	75
Springville, East River, Pictou co., N.S	00
Stanbridge, to, of, Missisquoi co., Que	. 10
Thamesville, Kent co., Ont	
Upper Rocky Point, tp. Eardley, Ottawa co., Que	
Limonite, mineral associations of	
Limonite, specimens illustrating the distribution of	1.0
Lithographic stone, from:	
Brant to of Bruce co., Ont	
Harvey, tp. of, Peterborough co., Ont	•
Inverhuron, tp. Bruce, Bruce co., Ont	
Marmora, tp. of, Hastings co., Ont	
Lithographic stone, vase of	, 140
M.	
ti t Dalkan	. 134
Magnesia alba, prepared from magnesite from Bolton	
Magnesite (native carbonate of magnesia), from:	.14, 134
Bolton, tp. of, Brome co., Que.	. 134
Sutton, tp. of, Brome co., Que	
Magnetic iron-ore,—see Magnetite.	
Magnetic pyrites,—see Pyrrhotite.	
Magnetic (magnetic iron-ore. See also Iron sand), from:—	. 63, 68
Ascot, tp. of, Sherbrooke co., Que	. 64, 71
Atic-okan River, dt. Kainy River, Ont.	69
Bagot, tp. of, Renfrew co., Ont.	63, 70
Barrie, tp. of, Frontenac co., Ont  Batchehwahnung Bay, L. Superior, Ont	64
Batchehwahnung Bay, L. Superior, Ont.	12
Pothuret th Of Lanark, Ont	

Vagnetite from	Page
Magnetite, from:	68
Bear River, Annapolis co., N.S.	69
Bedford, tp. of, Frontenac co., Ont.	
Belmont, tp. of, Frontenac co., Ont	71
Big Turtle River, dt. Rainy River, Ont.	
Blairton, tp. Belmont, Peterborough co., Ont	
Bolton, tp. of, Brome co., Que	68
Bristol, tp. of, Pontiac co., Que	
Cameron, Ottawa co., Que	73
Cape Commerell, Vancouver Isd., B.C	72
Cherry Bluff, Kamloops Lake, B.C	64
Clementsport, Annapolis co., N.S	68
Clementsvale, Annapolis co., N.S	
Cleveland, Annapolis co., N.S	62
Crow Lake, Hastings co., Ont	70
Deer Island, Passamaquoddy Bay, N.B	68
Digby, Digby co., N.S	68
Dungannon, tp. of, Hastings co., Ont	63
Eagle Lake, Frontenac co., Ont	69
Economy, Colchester co., N.S	62
Escott, tp. of, Leeds co., Ont	63
Fitzroy, tp. of, Carleton co., Ont	63
Galway tp. of, Peterborough co., Ont	
Gillies Bay, Texada Island, B.C	4, 72
Grandison, Argenteuil co., Que	164
Greenwater Lake, dt. Thunder Bay, Ont	7,1
Grenville, tp. of, Argenteuil co., Que	63
Gun-flint Lake, dt. Thunder Bay, Ont	71
Harriet Hbr., Skincuttle Inlet, B.C	64
Hill Isd., River St. Lawrence, Leeds co., Ont	69
Hope, Fraser River, B.C	71
Hull, tp. of., Ottawa co., Que	3, 68
Huntley, tp. of, Carleton co., Ont.	69
Inverness, tp. of, Megantic co., Que	68
Island in the Walker Group, B.C	4, 72
Killarney, Georgian Bay, L. Huron, Ont	64
Kinnear's Mills, Megantic co., Que	68
Knight Inlet, mainland of B.C	71
Kootanie River, B.C	71
Lavant, tp. of, Lanark co., Ont	69
Leeds, tp. of, Megantic, Que62, 6	3, 68
Litchfield, tp. of, Pontiac co., Que	68
Little Gull Lake, dt. Thunder Bay, Ont	71
Long Island, Cape Breton co., N.S	67
Lutterworth, tp. of, Haliburton co., Ont	71
Madoc, tp. of, Hastings co., Ont	), 164

Magnetite, from:	Pa	ge
		71
Magnetite Island, Knee L., dt. Keewatin, Ont		70
Marmora, tp. of, Hastings co., Ont		
Millstream, Gloucester co., N.B		68
Mount Hanly, Annapolis co., N.S	12,	
Mulgrave, tp. of, Ottawa co., Que		68
Nicoamen, Thompson River, B.C		71
Nictaux River, Annapolis co., N.S		68
North Burgess, tp. of, Lanark co., Ont		69
North Crosby, tp. of, Lanark co., Ont		69
North Mountain, Annapolis co., N.S	12,	67
Norway Lake, Renfrew co., Ont		69
Olden, tp. of, Frontenac co., Ont		69
Palmerston, tp. of, Frontenac co., Ont		69
Pentecost River, Saguenay co., Que		68
Pine Creek, Waterton River, Alta		71
Portage du Fort, Pontiac co., Que		12
Portland, tp. of, Ottawa co., Que		63
Rivers Inlet, mainland of B.C		71
Rivière Quinze, Pontiac co., Que		68
Rolph, tp. of, Renfrew co., Ont		69
Ross, tp. of, Renfrew co., Ont		63
St. François, tp. Vaudreuil, Beauce co., Que		62
St. Jérôme, Terrebonne co., Que		68
Seine River, dt. Rainy River, Ont		71
Snowdon, tp. of, Haliburton co., Ont		71
Sooke, Vancouver Island, B.C		72
South Crosby, tp. of, Leeds co., Ont		63
South Ham, tp. of, Wolfe co., Que		63
South Sherbrooke, tp. of, Lanark co., Ont	63,	69
Stafford, tp. of, Renfrew co., Ont		69
	12,	63
Swamp Lake, Peterborough co., Ont		71
Texada Isd., Strait of Georgia, B.C	64.	72
Thirty Island Lake, Frontenac co., Ont	63.	69
Torbolton, tp. of, Carleton co., Ont	,	68
Tudor, tp. of, Hastings co., Ont		70
Wakefield, tp. of, Ottawa co., Que		63
Watkinson's, Fraser River, B.C		71
Watkinson's, Fraser Mver, B.C.  Wollaston, tp. of, Hastings co., Ont	70	
Wright, tp. of, Ottawa co., Que	, 03	68
Wright, tp. 01, Ottawa co., vae	79	80
Magnetite, mineral associations of	, ,	67
wagnetite, specimens inustrating the distribution of	,	0,
Magnetite, titaniferous, (see also Ilmenite), from:		79
Bathurst, tp. of, Lanark co., Ont		79
Fitzroy, tp. of, Carleton co., Ont		10

	Page
Magnetite, titaniferous, from:	
St. François, Beauce co., Que	79
Shawenegan, St. Maurice co., Que	79
Silver Lake, tp. South Sherbrooke, Lanark co., Ont	79
South Crosby, tp. of, Lanark co., Ont	79
Malachite	14
Maltha,—see Mineral tar.	
Manganese, Minerals and ores of:	
Bog manganese	
Manganite	
Psilomelane	
Pyrolusite12,	
Manganese ore, specimens illustrating the distribution of	61
Manganiferous conglomerate	62
Manganite, from:	
Amherst Isd., Magdalen Islands, Que	
Black Rock, Clifton, Colchester co., N.S	
Grindstone Isd., Magdalen Islands, Que	
Markhamville, King's co., N.B	
Teny Cape, Hants co., N.S	
Walton, Hants co., N.S	
West Quaco, St. John co., N.B	61
Marble (limestone. Slabs, cut and polished), from:	
Arnprior, tp. McNab, Renfrew co., Ont11	
Barrie, tp. of, Frontenac co., Ont	
Beaver Cove, Vancouver Island, B.C	
Bras d'Or Lake, Cape Breton co., N.S	
Caughnawaga, Laprairie co., Que11	
Cornwall, Stormont co., Ont	
Departure Bay, Vancouver Isd., B.C	
Dudswell, tp. of, Wolfe co., Que	
Durham, tp. of, Drummond co., Que	
Flzevir, tp. of, Hastings co., Ont	
Esquimaux Island, Mingan, Que	
Gloucester, tp. of, Carleton co., Ont	
Grenville, tp. of, Argenteuil co., Que	
Horton. tp. of, Renfrew co., Que	
Hull, tp. of, Ottawa co., Que	
Kingsey, tp. of, Drummond co., Que	
Lanark, tp. of, Lanark co., Ont	
Large 1sland, Seigniory of Mingan, Que	
L'Orignal, Préscott co., Ont	
Madoc, tp. of, Hastings co., Ont	
Montreal, Hochelaga co., Que	
Pakenham, tp. of, Lanark co., Ont	
Pointe Claire, Jacques Cartier co., Que	17, 118

	Page
Marble, from:	115
St. Armand, Missisquoi co., Que	117
St. Dominique, Soulanges co., Que	
St. Joseph, Beauce co., Que	118
St. Lin, L'Assomption co., Que	
Shipton, tp. of, Richmond co., Que	117
Terrebonne, Terrebonne co., Que	115
	110
Marble (serpentine. Slabs, cut and polished), from:  Melbourne, tp. of, Richmond co., Que	. 163
Orford, tp. of, Sherbrooke co., Que	163
Reindeer Lake, N.W.T	113
Shipton, tp. of, Richmond co., Que	119
South Ham, tp. of, Wolfe co., Que	119
Marcasite	8
Marl, from:	
Belleville, tp. Thurlow, Hastings co., Ont.	152
Bentinck, tp. of, Grey co., Ont	153
Calumet, tp. of, Pontiac co., Que	152
Carrick, tp. of, Bruce co., Ont	153
Cypress Hills, Assa.	1.53
Hull, tp. of, Ottawa co., Que	152
Marl Lake, Island of Anticosti, Que	152
Montreal, Hochelaga co., Que	152
Nepean, tp. of, Carleton co., Ont	152
River St. Pierre, Hochelaga co., Que	152
Rockwood, Eramosa, Wellington co., Ont	153
St. Armand, Missisquoi co., Que	152
Ste. Rose, Laval co., Que	152
Sheffield, tp. of, Addington co., Ont	152
Stanstead, tp. of, Stanstead co., Que	152
Storrington, tp. of, Frontenac co., Ont	152
Thornberry, Hochelaga co., Que	152
West Hawkesbury, tp. of, Prescott co., Ont	152
White Mud River, Assa	153
Marl, arenaceous, used for making bath-brick	$\frac{162}{25}$
Marmolite	12
Martite	55
Matte from roasted nickeliferous pyrrhotite	28
Melanterite	20
Menaccanite,—see Ilmenite.	. ç
Menaccanite,—see Ilmenite.  Meneghinite	£
Management Minorals and ores of :	7 36
Cinnabar	1, 1
Mercury, Native	j-
Metacinnabarite	

Page	e
Mercury, Native, Seshart Channel, Barclay Sound, V.I., B C	3
Metacinnabarite, Read Island, Vancouver Isd., B.C	7
Metals and their ores:	
Antimony ores 54, 57	7.
Bismuth ores	3
Cobalt ores	3
Copper ores	3
Gold ores	ï
Iron ores 62, 67	7
Lead ores 50, 52	2
Mercury ores	)
Nickel ores	3
Platinum ores 6, 8	3
Silver ores	2
Zinc ores 55, 56	9
Meteoric iron	3
Mica:	
Biotite	1
Chromiferous2:	3
Lepidomelane	1
Muscovite	1
Phlogopite	l
Mica, with mineral inclusions	2
Mica-slate, suitable for whetstones (see also Whetstones), from:	
Potton, tp. of, Brome co., Que	l
Shipton, tp. of, Richmond co., Que	1
Micaceous iron-ore, from:	
Borrowdale, Richmond co., N.S	2
Cameron's Mill, Guysborough co., N.S	2
Gairloch Mountain, Victoria co., N.S	2
Madoc, tp. of, Hastings co., Ont	4
Robinson Cove, Richmond co., N.S	2
St. Armand, East, tp. of, Missisquoi co., N.S	3
Stewart's Pond, Guysborough co., N.S	2
Sutton, tp. of, Brome co., Que	2
Michel-Lévyte	
	ī
Microcline	0
Microcline	0
	0
Millerite, Orford, tp. of, Sherbrooke co., Que	0
Millerite, Orford, tp. of, Sherbrooke co., Que	0 8 1
Millerite, Orford, tp. of, Sherbrooke co., Que	0 8 1 5 7
Millerite, Orford, tp. of, Sherbrooke co., Que	0 8 1 5 7
Millerite, Orford, tp. of, Sherbrooke co., Que       7, 30, 54, 56         Millstones, material suitable for.       16         Mineral associations of :       15         Graphite       13         Hematite       8         Limonite       8	0 8 1 5 7 2 3
Millerite, Orford, tp. of, Sherbrooke co., Que       7, 30, 54, 56         Millstones, material suitable for.       16         Mineral associations of:	0 8 1 5 7 2 3 9

	Page
Mineral coal,—see Coal.	
Mineral oil,—see Petroleum.	
pigments, prepared	2, 133
Mineral resin, from:	
Cedar Lake, Saskatchewan dt., N.W.T	29
Gaspé Basin, Gaspé Co., Que	29
Hat Ck., nr. Marble Cañon, B.C	29
Old Man River, Middle Fork of, Alta	29
Mineral tar, from:	
Athabasca River, N.W.T2	9, 105
Great Slave L., N. shore of, N.W.T	105
Tar Island, Peace River, N.W.T	105
White Mud River, Peace River, N.W.T	105
Mineral water, from:	
Alfred, Prescott co., Ont	144
Ancaster, Wentworth co., Ont	3, 144
Baie du Febvre, Nicolet co., Que	144
Bay St. Paul, Charlevoix co., Que	143
Belœil, Verchères co., Que	144
Berthier, Berthier co, Que	144
Brant, Bruce co., Ont	145
Caledonia, Prescott co., Ont	144
Caxton, St. Maurice co., Que	143
Chambly, Chambly co., Que	144
Charlotteville, Norfolk co., Ont	145
Chippewa, Welland co., Ont	145
Eastman's Springs, Carleton co., Ont14	3, 144
Fitzroy, Carleton co., Ont	144
Gloucester, Carleton co., Ont	3, 144
Hallowell, Prince Edward co., Ont	143
Hamilton, Wentworth co., Ont	145
Hawkesbury, Prescott co., Ont	144
Henryville, Iberville co., Que	144
Kingston, Frontenac co., Ont	143
Lanoraie, Berthier co., Que	144
Marcotte's Mills, Portneuf co., Que	144
Méthot's Mills, Lotbinière co., Que	144
Niagara, Lincoln co., Ont	145
Nicolet, Nicolet co., Que	144
Pike River, Sabrevois, Iberville co., Que	145
Plantagenet, Prescott co., Ont	144
Point-du-jour, L'Assomption co., Que	144
Rawdon, Montcalm co., Que	144
Rivière Ouelle, Kamouraska co., Que	143
St. Catharines, Lincoln co., Ont	144
Ste. Geneviève, Champlain co., Que	143

No. 1 and a	Page
Mineral water, from:	Z 7 4 1
St. Hyacinthe, St. Hyacinthe co., Que	144
St. Léon, Maskinongé co., Que	143
St. Ours, Richelieu co., Que	144
Tuscarora, Brant co., Ont	145
Varennes, Verchères co., Que	144
Whitby, Ontario co., Ont.	143
Minerals, economic, collection of	35
Minerals, systematic, collection of	3
Minerals applicable to certain chemical manufactures	92
Apatite	150
Arsenopyrite	56, 57
Celestite	134
	56, 60
Iron pyrites	56, 61
Magnesite	. 134
Manganese ores	61, 62
Molybdenite	56, 60
Scheelite	28, 33
Minerals applicable to common and decorative construction	106
Cement-stones	128
Clays	122
Dolomites	110
Gneisses	113
Granites	112
Gypsum	129
Labradorite rock	113
Limestones	7, 127
Marbles, limestone and serpentine	114
Roofing slates	106
Sandstones	111
Serpentine	113
Syenites	113
Trap rock	113
Minerals applicable to the fine arts and jewellery	145
Minerals employed as fertilizers	150
Apatite	150
$(\frac{1}{4}\text{ypsum}$	152
Marls	152
Phosphatic rock.	152
Minerals employed for grinding and polishing.	160
Infusorial earth	161
Marls, arenaceous and calcareous	
Mica-slates	161
Sandstones	
Silicious sand	162
Silicious silt	162

	Page
Minerals of miscellaneous application	162
Felspar, for manufacture of procelain	139
Moulding sand	162
Quartz, quartz sand and sandstone for glass-making	162
Soap clay, employed as a detergent	162
Minerals used in the production of light and heat	93
Albertite	104
Anthracite	102
Bituminous shale	105
Coal	99, 103
Lignite	93
Peat	93
Petroleum	> 105
Minerals used as pigments	131
Barytes	133
Calcareous marl	152
Clay	133
Ferruginous dolomite	133
Ferruginous clay	133
Iron ochres	131
Steatite	
Minerals used for resisting fire	
Asbestusl	38, 140
Fire-clay	139
Graphite	34, 136
Mica	141
Potstone	139
Sandstone	139
Soapstone	. 139
Mispickel,—see Arsenopyrite.	
Molybdenite, from:	
Aldfield, tp. of, Pontiac co., Que	6, 60
Alleyn, tp. of, Pontiac co., Que	. 60
Bagot, tp. of, Bagot co., Que	. 60
Chegoggin Point, Yarmouth co., N.S	. 60
Cortes Island, Strait of Georgia, B.C	. 61
Eardley, tp. of, Ottawa co., Que	. 60
Harvey Hill, tp. Leeds, Megantic co., Que6	, 56, 60
Hull, tp. of, Ottawa co., Que	. 60
Leeds, tp. of, Megantic co., Que	56, 60
Lillooet R., vic. of New Westminster	. 61
Miramichi, Northumberland co., N.B	. 60
North Crosby, tp, of, Leeds co., Ont	. 60
North River, Victoria co., N.S.	. 60
Portage de Ste. Geneviève, Champlain co., Que	. 60
Ross, tp. of. Renfrew co., Ont	5, 56, 60

	Page
Molybdenite, from:	
St. Ann's, Victoria co., N.S	60
St. Jérôme, Terrebonne co., Que	60
Spuzzum Creek, Fraser River, B.C	61
Terrace Bay, Lake Superior, Ont	60
Texada Island, Strait of Georgia, B.C.	61
Molybdenum ore, specimens illustrating the distribution of	60
Molybdic ochre,—see Molybdite.  Molybdite	11
Monazite.	26
Morenosite	28
Mosaics	140
Moss agate. 149	
Moulding sand,—see under Sand.	,
Mountain cork	17. 34
Mountain leather.	17
Muscovite, from:	
Canoe and Coldwater Rivers, at junction of, B.C	141
Clinton, north-east of, B.C	141
Masham, tp. of, Ottawa co., Que	23
Mattawa, dt. Nipissing, Ont	23
Miller, tp. of, Frontenac co., Ont	3, 141
Skuzzy Creek, Fraser River, B.C	141
Villeneuve, tp. of, Ottawa co., Que	
Yeo's Island, Upper St. Maurice River, Que	23
Muscovite, with mineral inclusions	22, 23
M	
N.	
Nail-head spar14, 30	, 167
Native antimony	
arsenic	อี
— copper	
— gold	
— iron	
mercury.  — platinum.	6
- silver	
Natrolite	
Nephrite	
Niccolite, from:	, 110
Denison, tp. of, dt. Algoma, Ont	7
McGregor, tp. of, dt. Thunder Bay, Ont	7
Nickeliferous iron sulphide, Lake Huron, Ont 5	5, 59
M. I lifeway manufactite and Dynahatite michaliferaya	

Nickel, Minerals and ores of:	Page
Gersdorffite	
Millerite	
Morenosite, 30, 5	
Niggolita	28
Niccolite	7
Nickeliferous pyrrhotite	
Polydymite	7
Nickel ore (nickeliferous pyrrhotite), after roasting	55
matte from roasted ore	55
Nickel ore, specimens illustrating the distribution of	58
Nitre, Big Bar, Fraser River, B.C.	27
٠, ٥.	
Obsidian	150
Ochre, iron,—see Iron ochres.	16/07
Oil coal, Pictou co., N.S	10-
Oil, mineral,—see Petroleum.	105
Oil shale, Marsh Brook, Pictou co., N.S	300
	105
Oligoclase	
Opal, common	11
Orthoclase	, 150
P.	
τ.	
Parophite	2
Paulit	16
Peat, from:	
Anticosti Island, Que	93
Lapigconière, Napierville co., Que	93
Ste. Brigide, Iberville co., Que	93
St. Dominique, Bagot co., Que	93
St. Hubert, Chambly co., Que	93
Pectolite.	17
Peristerite	
Perthite	
Petroleum, crude, from:	, 100
	10~
Beliveau, Westmoreland co., N.B.	105
Cape Smith, Grand Manitoulin Isd., L. Huron, Ont	106
Enniskillen, Lambton co., Ont	105
	105
Gaspé Basin, vic. of, Gaspé co., Que	* 0 .
Lake Ainslie, Inverness co., N.S	105
Lake Ainslie, Inverness co., N.S  Marshfield, tp. Colchester, Essex co., Ont	105
Lake Ainslie, Inverness co., N.S  Marshfield, tp. Colchester, Essex co., Ont  Petrolia, Lambton co., Ont	105 105
Lake Ainslie, Inverness co., N.S  Marshfield, tp. Colchester, Essex co., Ont	105
Lake Ainslie, Inverness co., N.S  Marshfield, tp. Colchester, Essex co., Ont  Petrolia, Lambton co., Ont	105 105

	Page
Petroleum, crude, from:	
St. Joseph, Dorchester, Westmoreland co., N.B	105
Silver Brook, branch of, Gaspé co., Que	105
South Kootanie Pass, Rocky Mtns., dt. Alberta, N.W.T	106
— Rocky Mtns., B.C	106
Tilsonburg, tp. Dereham, Oxford co., Ont	105
Petroleum, altered, in trap, Tar Pt., Gaspé co., Que	105
bearing fossiliferous limestone, Bertie, Ont	105
distilled from bituminous shale of Kettle Pt., Ont	106
products obtained from:	
Benzine; illuminating oils; lubricating oils; paraffine:	
coke,	105
Phenomenal geology, specimens illustrating	167
Phlogopite, from:	10,
Aylwin, tp. of, Ottawa co., Que	141
Calumet Island, Pontiac co., Que.	24
Cawood, tp. of, Pontiac co., Que	141
Grenville, tp. of, Argenteuil co., Que	
	141
Hudson Strait, N. shore of, Baffin Land.	
Hull, tp. of, Ottawa co., Que	141
Masham, tp. of, Ottawa co., Que	
North Burgess, tp. of, Lanark co., Ont	
Otty L., tp. North Burgess, Lanark co., Ont	24
Portland, tp. of, Ottawa co., Que	
South Burgess, tp. of, Leeds co., Ont	141
Templeton, tp. of, Ottawa co., Que	
Wakefield, tp. of, Ottawa co., Que	
Phlogopite, with mineral inclusions	
Pholerite	25
Phosphate mineral and ore.	
Apatite	150
Phosphatic rock.	152
Phosphatic rock, from:	
Macintosh Brook, Cape Breton co., N.S	152
Rivière Ouelle, Kamouraska co., Que	- 152
Wilson River, Man	152
Picrolite	25, 33
Pigments, Minerals used as	131
Pigments, mineral, prepared	2, 133
Placer gold (alluvial gold), from:	
Chaudière River, Beauce co., Que	10, 41
Chaussegros, Vaudreuil, Beauce co., Que	40
Cherry Creek, Upper, B.C	5
DeLery, Vaudreuil, Beauce co., Que	39
Devils Rapids, Chaudière R., Beauce, co. Que	40
Dudswell Road, Sherbrooke co., Que	41

	Page
Placer gold, from:	4.0
Famine River, tp. Watford, Dorchester co., Que	40
Gilbert River, Vaudreuil, Beauce co., Que	
Jersey Point, Rivière du Loup, Beauce co., Que	40
Keithly Creek, Cariboo, B.C	
Kempt stream, Beauce co., Que	
Lake Archer, Dorchester co., Que.	40
Loubier Ck., St. François, Vaudreuil, Beauce co., Que	40
Magog River, Sherbrooke co., Que	41
Mosquito Ck., Cariboo, B.C	5
Omenica, B.C.	41
Pozer's stream, tp. Shenly, Beauce co., Que	
River Oliva, Beauce co., Que	40
St. Francis, tp. Dudswell, Wolfe co., Que	
Samson, Beauce co., Que	40 40
Rivière des Plantes, Vaudreuil co., Que	
— du Bras, Beauce co., Que	
— du Loup, Beauce co., Que	40
- Grande Coudée, Beauce co., Que	40
Ruisseau St. Henry, Beauce co., Que.	39
St. Charles, Vaudreuil, Beauce co., Que	40
St. François, Vaudreuil, Beauce co., Que	40
St. George, Aubert-Gallion, Beauce co., Que	40
Ste. Marie, St. Joseph, Beauce co., Que	
Travellers' Rest River, Beauce co., Que	
Trout River, Jersey, Beauce co., Que	4()
Plaster-of-Paris, prepared from gypsum from:	40
Beaver Brook, Colchester co., N.S	130
Mount Healy, Haldimand co., Ont.	131
Windsor, Hants co., N.S.	129
Platinum, Native, from:	120
Granite ('reek, Tulameen River, B.C	6
North Saskatchewan River, Alta	6
Similkameen River, B.C	6
Plumbago,—see Graphite.	
Polishing, minerals used for,—see under Minerals employed for grinding	
and polishing.	
Polydymite, Denison, tp. of, dt. Algoma, Ont	7
Porcellanite	46, 150
Porcellophite	24
Porphyritic boulder	164
Porphyry, as an ornamental stone, from:	
Chatham, tp. of, Argenteuil co., Que	147
Grenville, tp. of, Argenteuil co., Que	47, 150
Lake Superior (Desbarat's location), Ont	147
$16\frac{1}{2}$	
102	

	age
Porphyry, from:	
Onaping, nr. to, dt. Nipissing, Ont	150
Potstone (compact chlorite), from:	
Bolton, tp. of, Brome co., Que	139
Broughton, tp. of, Brome co., Que	139
Potstone, dish and vase, made of	146
Pottery clays—clay used as such, from:	100
London, Middlesex co., Ont	126
Montreal, Hochelaga eo., Que	123
St. John's, St. John's co., Que	123
Prase	
Prehnite	
Pseudomorphous quartz	11
Psilomelane, Gowland Mtn., Albert co., N,B	, 62
Purple copper ore,—see Bornite.	0.0
Pyrallolite	, 33
Pyrite (iron pyrites), from:	61
Alfred, tp. of, Prescott co., Ont.	61
Ascot, tp. of, Sherbrooke co., Que.	8
Buckingham, tp. of, Ottawa co., Que	30
Cape Chatte, Gaspé co., Que.	8
Dalhousie, tp. of, Lanark co., Ont	61
Devil's Lake, tp. Bedford, Frontenac co., Ont	, 01
Eckstall Inlet, Skeena River, B.C. 8, 57	
Elizabethtown, tp. of, Leeds co., Ont	
Flint Island, Hudson Bay	, 01
Garthby, tp. of, Wolfe co., Que.	56
Grand Michin, Rimouski co., Que.	8
Hudson Bay, north-west shore of	
Peace River, N.W.T.	8
Quebec, Quebec co., Que	8
Swan Creek, Cumberland co., N.S.	8
Wakefield, tp. of, Ottawa co., Que.	8
Pyrites, arsenical,—see Arsenopyrite.	
- copper,—see Chalcopyrite.	
- iron,—see Pyrite.	
— magnetic,—see Pyrrhotite.	
Pyrolusite. from:	
Loch Lomond, Cape Breton co., N.S	, 62
Markhamville, King's co., N.B	12
Teny Cape, Hants co., N.S	
Walton, Hants co., N.S	12
Wasson's Bluff, Two Islands, Colchester co., N.S	, 62
Pyroxene 16	
Pyrrhotite	

	Page	
Pyrrhotite, nickeliferous, from:	0	
Blezard, tp. of, dt. Nipissing, Ont	58	
Broder, tp. of, dt. Nipissing, Ont	58	
Clarendon, tp. of, Pontiac co., Que	58	
Denison, tp. of, dt. Algoma, Ont	58	
Drury, tp. of, dt. Algoma, Ont	4, 59	
Jackfish Bay, Lake Superior, Out.	55	
L'Etete, Charlotte co., N.B	58	
Levack, tp. of, dt. Algoma, Ont	59	
Lorne, tp. of, dt. Algoma, Ont		
McKim, tp. of, dt. Nipissing, Ont54, 5		
Milltown, St. Stephen, Charlotte co., N.B	58	
Nairn, tp. of, dt. Algoma, Ont	59	
Neelon, tp. of, dt. Nipissing, Ont	58	
St. Stephen, Charlotte co., N.B		
Snider, tp. of, dt. Algoma, Ont	(۱,۱	
Q.		
	9, 10	
Quartz, varieties of:	140	
Agate	164	
Amethystine	149	
Asteriated	150	
Carnelian.	146	
Chalcedony	10	
Heliotrope		
Hornstone	149	
Jasper		
Prase		
Pseudomorphous	11	
Quartz gold,—see Auriferous quartz.		
— suitable for glass-making	162	
- tailings, for fire-brick	139	
Quicksilver,—see Mercury, native.		
D		
R.		
Raphilite	17	
Refractory (fire resisting) materials:		
Asbestus	, 140	
Fire-clay	139	
Graphite		
Mica	141	
THE CONTRACT OF THE CONTRACT O		

	Page
Refractory (fire resisting) materials:	
Potstone	139
Sandstone	139
Soapstone	139
Rensselaerite	
Retinite2	9, 150
Ripidolite	24
Rocks, Archæan and Palæozoic, specimens of, cut and polished	120
- Laurentian, in which details of structure are rendered apparent	
by weathering.'	173
- stratigraphical collection of	166
Roofing slate, from:	
Acton, tp. of, Bagot co., Que	106
Cleveland, tp. of, Richmond co., Que	107
Kingsey, tp. of, Drummond co., Que	106
Madoc, tp. of, Hastings co., Ont	107
Melbourne, tp. of, Richmond co., Que	107
Orford, tp. of, Sherbrooke co., Que	107
St. Sylvestre, Lotbinière co., Que	107
Shipton, tp. of, Richmond co., Que	107
Rutile	12
S.	
Saline deposit, from:	
Bell R., L. Winnipegosis, Man	142
Maple Creek, Assa	142
Wood Mountain Post, Assa	142
Salt, common, manufactured from brine occurring at:	
Clinton, Huron co., Ont	142
Goderich, Huron co., Out	142
Kincardine, Bruce co., Ont	142
Port Franks, Lambton co., Ont	142
Salt R., L. Athabasca, N.W.T.	143
Seaforth, Huron co., Ont	142
Sussex, King's co., N.B	142
Samarskite	26
Sand, silicious, used for brick-making, from:	
Montreal, Hochelaga co., Que	127
Port Nelson, Halton co., Ont	127
Upper Woodstock, Carleton co., N.B	127
Sand, silicious, suitable for glass-making, from:	
St. Joseph Island, L. Huron, Ont	162
Sand, silicious, used for moulding, from:	
Dundas, Wentworth co., Ont	162
North Sherbrook, Lanark co., Ont	162

	The state of the s	Page
Sand,	silicious, used for moulding, from:	
	Owen Sound, Grey co., Ont	162
	Radnor Forges, Champlain co., Que	162
	Ste. Marguerite, Champlain co., Que	162
Sand,	silicious, suitable for polishing, from:	
	Amherst Isd., Magdalen Islands, Que	162
	Laval, Montmorency co., Que	162
	Mount Hope, Wentworth co., Ont	162
	Sturgeon Cove, Charlotte co., N.B.	162
Sand,	silicious, used for sharpening knives, from:	1.00
C( ]	Shipton, Richmond co., Que	162
Sands	tone, suitable for glass-making, from:	100
	Hemmingford, Huntingdon co., Que	162
	Nepean, Carleton co., Ont	162
	Oneida, Haldimand co., Ont	162
	Williamstown, Chateauguay co., Que	162
Sands	tone, suitable for grindstones, from:	7.00
	Alumette Rapids, Renfrew co., Ont	160
	Bay of Chaleurs, Bonaventure co., Que	160
	Clifton, Gloucester co., N.B	160
	Nanaimo, Vancouver Island, B.C	161
	Pembroke, Renfrew co., Ont	161
Sands	tone, suitable for polishing, from:	
	Dorchester, Westmoreland co., N.B	161
Sands	tone, suitable for whetstones (see also Whetstones), from:	
	Antigonish, Antigonish co., N.S	161
Sands	tone, used as a fire resisting material, from:	
	Pittsburgh, Frontenac co., Ont	139
Sands	tone, as a building stone, from:	
	Admiralty or Salt Spring Island, B.C	112
	Amherst, Cumberland co., N.S	111
	Beauharnois, Beauharnois co., Que	111
	Bell's Corners, tp. Nepean, Carleton co., Ont	111
	Budreau village, Dorchester, Westmoreland co., N.B	111
	Caledon, Peel co., Ont.	112
	Cap à l'Aigle, Charlevoix co., Que	112
	Cap Rouge, Portneuf co., Que	111
	Dundas, Wentworth co., Ont	112
	Eight Mile Brook, West River, Pictou co., N.S	111
	Esquesing, tp. of, Halton co., Ont	111
	Forks of the Credit, Caledon, Peel co., Ont	112
	Georgetown, tp. Esquesing, Halton co., Ont	111
	Haddington Isd., Broughton Strait, B.C	112
	Hawkesbury, Prescott co., Ont	111
	Isle Verte, Nipigon Bay, L. Superior, Ont	112
	Johnson's Brook, Glenville, Cumberland co., N.S	111

	Page
Sandstone, as a building stone, from:	
Ledge Point, Port McNeil, V. I., B.C	112
Mary's Point, Shepody Bay, Albert co., N.B	111
Miramichi R., Newcastle, Northumberland co., N.B	111
Mono, Dufferin co., Ont	112
Nanaimo, Vancouver Island, B.C	112
Nepean, tp. of, Carleton co., Ont	111
Newcastle Island, B.C	112
Oneida, tp. of, Haldimand co., Ont	111
Otty L., tp. North Elmsley, Lanark co., Ont	111
Pembroke, Renfrew co., Ont	111
Point Lévis, Lévis co., Que	112
Portland, tp. Bastard, Leeds co., Ont	111
Ramsay, Lanark co., Ont.	111
Rockland, Dorchester, Westmoreland co., N.B.	111
Saponite	25
Scapolite,—see Wernerite.	
Scheelite	
Scolecite	22
Selenite	28, 33
Semi-anthracite, from:	
Bow R. nr. Canmore station, C.P.R., Alta	102
Bow R., vic. of, Rocky Mountains, Alta	102
Cascade River, near Bow River, Alta	102
Cascade R., Rocky Mountains, Alta	102
Senarmontite	11
Serpentine	
Serpentine, columns of, polished	163
Serpentine, variety chrysotile,—see under Asbestus.	
Serpentine limestone, from:	
Grenville, tp. of, Argenteuil co., Que	110
Grenville, Augmentation of, Quebec	110
Serpentine marble,—see marble, serpentine.	
Shell marl,—see Marl.	
Siderite (spathic iron), from:	
Acadia Mines, Colchester co., N.S	76
Cow Bay, Cape Breton co., N.S	14
Flint Isd., E. coast of Hudson Bay	
Little Whale R., E. coast of Hundson Bay	76
Londonderry, Colchester co., N.S	
McIntyre, tp. of, dt. Thunder Bay, Ont	
Sutherlands R., Pictou co., N.S.	14, 76
Silicified wood	11
Silt, silicious, suitable for polishing, from:	
Columbia R., below second lake, B.C	162
Crooked Ck., nr. Waterton Lake, Alta	162

	Page
Silt, silicious, suitable for polishing, from:	
Red Deer R., eight miles above Forks of, N.W.T	162
White Mud River, Cypress Hills, Assa	162
Silver glance,—see Argentite .  Silver, Minerals and ores of :	
	40 40
Argentite	
Arquerite	G
Silver-lead ore,—see under Galenite.	
Silver, Native	40 50
Tetrahedrite, Argentiferous	
Silver, Native, from:	50
Bear Lake, vic. of, W. Kootanie dt., B.C	5 50
Kootanie Lake, vicinity of, B.C.	5, 50 43
Lybster, tp. of, dt. Thunder Bay, Ont.	5, 49
McGregor, tp. of, dt. Thunder Bay, Ont.	
McIntyre, tp. of, dt. Thunder Bay, Ont.	48
O'Connor, tp. of, dt. Thunder Bay, Ont.	49
Omenica, B.C	5
Paipoonge, tp. of, dt. Thunder Bay, Ont	5, 48
Silver Islet, Lake Superior, Ont	5, 48
Spar Island, Lake Superior, Ont	48
Whitefish R., dt. Thunder Bay, Ont	49
Silver ore,—from:	10
Acadia claim, McDame Ck., Cassiar, B.C	47
Alpha claim, Mount Field, B.C	42
Apex claim, Cottonwood-Smith Ck., B.C	43
Arctic Circle claim, Boulder Ck., Omenica, B.C	47
Ardmore claim, Nicola Valley, B.C	47
Badger mine, tp. Gillies, Ont	49
Balfour claim, Illecillewaet R., B.C	44
Beaver claim, W. Kootanie dt., B.C	45
Beaver mine, tp. O'Connor, Ont	49
Beck mine, tp. McGregor, Ont	48
Best claim, W. Kootanie dt., B.C	46
Black Chief claim, Kootanie Lake, B.C	43
Black Horse claim, Deception Ck., B.C	42
Blue Bell claim, Kootanie Lake, B.C	44
Blue Bird claim, W. Kootanie dt., B.C	46
British Empire claim, Nicola Valley, B.C	47
Cariboo claim, Illecillewaet dt., B.C	44
Cariboo and Northern Interior of B.C	47
Carleton claim, Mount Stephen, B.C	41
Copper Bonanza claim, Otter-tail Ck., B.C	41
Cornucopia claim, Mount Stephen, B.C	41
Cottonwood mine, Cottonwood-Smith Ck., B.C	42

C1	C	Page
sirvei	ore, from:	40
	Crescent claim, Spilimichene R., B.C.	42 42
	Dandy claim, Toad Mountain, B.C	46
	Dardanelles claim, W. Kootanie dt., B.C	43
	Della claim, Kootanie Lake, B.C.	43
	Director claim, Kootanie Lake, B.C.	48
	Duncan mine, tp. McIntyre, Ont.	45
	Dunvegan claim, Illecillewaet dt., B.C	41
	East Kootanie, district of, B.C.	44
	Edinburgh claim, Illecillewaet dt., B.C	44
	Elizabeth claim, Illecillewaet dt., B.C	42
	Evening Tide claim, Toad Mountain, B.C	42
	Field Station, vic. of, C. P. R., B.C.  Fishburn claim, Illecillewaet dt., B.C.	45
		45 45
	Florence claim, Illecillewaet dt., B.C	46
	Freddie Lee claim, W. Kootanie dt., B.C.	
	Gillies, tp. of, dt. Thunder Bay, Ont	45, 49
	Gold Hill claim, Illecillewaet dt., B.C.	46
	Great Western claim, W. Kootanie dt., B.C	42
	Grizzly elaim, Toad Mountain, B.C	44
	Hendryx mining camp, B.C	44
		43
	Highlander claim, Kootanie Lake, B.C	43
		45
	Ibex claim, Illecillewaet dt., B.C	41
	Illecillewaet Mines, B.C	44
	Iron Horse claim, W. Kootanie dt., B.C.	45
	Iroquois claim, Toad Mountain, B.C	42
	Isabella claim, Illecillewact River, B.C.	44
	Jeff Davis claim, Kootanie Lake, B.C.	43
	Jenny Long claim, Nicola Valley, B.C.	47
	Joshua claim, Nicola Valley, B.C.	46
	Jumbo claim, Toby Creek, B.C.	42
	Jumbo claim, Illecillewaet dt., B.C.	44
	Kaslo-Slocan Mines, B.C.	45
	King William claim, Nicola Valley, B.C.	47
	Kootanie Bonanza claim, Toad Mtn., B.C.	42
		44
	Kootanie Chief claim, Kootanie Lake, B.C	43
	Labeau Mines, Cottonwood-Smith Ck., B.C.	43
		4.5
	Lady of the Lake claim, Illecillewaet dt., B.C.	44
	Lanark claim, Illecillewaet River, B.C	43
	Louis claim, nr. Otter-tail Station, C. P. R., B.C.	4.0
	Lucky Jim claim W Kootanie dt B C	41

Y*1	C	Page
Silver	ore, from:	40
	McMurdo mining area, B.C	42
	Maple Leaf claim, Illecillewaet River, B.C	44
	Mary Reynolds claim, Nicola Valley, B.C	47
	Mascot claim, Copper Creek, B.C	
	Monarch claim, Mount Stephen, B.C	42
	Monte Cristo claim, W. Kootanie dt., B.C	45
	Montezuma claim, W. Kootanie dt., B.C	4.5
	Neosho claim, Kootanie Lake, B.C	
	Nevada claim, Tulameen River, B.C	47
	Noble Five claim, W. Kootanie dt., B.C	46
	Number One claim, Kootanie Lake, B.C.	43
	Okanagan claim, W. Kootanie dt., B.C	46
	Payne claim, W. Kootanie dt., B.C.	4.5
	Pie Island, Lake Superior, Ont	48
	Pine Bay, tp. Crooks, L. Superior, Ont	48
	Pioneer claim, Otter-tail (k., B.C	41
	Planet claim, Nicola Valley, B.C,	47
	Poor Man claim, vic. of Nelson, B.C	43
	Porcupine mine, tp. Gillies, Ont	48
	Prince's location, L. Superior, Ont	48
	Rabbit Mountain mine, tp. Paipoonge, Ont	48
	Rock Ck., Kettle R., Okanagan, B.C.	47
	Sadou's Ledge, Mosquito Ck., Cariboo, B.C	47
	Sailor Boy claim, Illecillewaet R., B.C	44
	Sanquahar claim, Illecillewaet dt., B.C	44
	Shakespere claim, Illecillewaet dt., B.C	45
	Shuniah mine, tp. McIntyre, Ont	48
	Silver Bow claim, Illecillewaet dt., B.C	45
	— Harbour mine, tp. McGregor, Ont	48
	- Hill claim, tp. Lybster, Ont	49
	- Islet, Lake Superior, Ont	48
	- King claim, Toad Mountain, B.C	42
	— Mountain mine, tp. Lybster, Ont	49
	Queen claim, Jamieson Ck., B.C	47
	— Tip claim, W. Kootanie dt., B.C	45
	Singleton mine, tp. McIntyre, Ont	48
	Sky Line claim, Kootanie Lake, B.C	43
	Slocan Boy claim, W. Kootanie dt., B.C.	46
	Slocan Star claim, W. Kootanie dt., B.C.	46
	Solo claim, W. Kootanie dt., B.C.	4.5
	Southern Interior of B.C	46
	Spar Island, Lake Superior, Ont	48
	Spokane claim, Kootanie Lake, B.C	43
	Star claim, Nicola Valley, B.C.	46
	Stump Lake or Nicola Mines, B.C.	46

	Page	
Silver ore, from:		
Stump Lake, Nicola Valley, B.C.	41, 40	
Sunrise claim, Kootanie Lake, B.C.	43	
Sweden claim, Kootanie Lake, B.C	43 42	
Syenite Bluff claim, Deception Ck., B.C	48	
Three A mine, tp. McGregor, Ont.	48	
Thunder Bay mine, tp. McGregor, Ont	48	
Thunder Bay mining region, Ont	48	
Tiger claim, Kootanie Lake, B.C	43	
Toad Mountain mining camp, B.C.  Tough Nut claim, Toad Mountain, B.C.	42	
	45	
Triangle claim, W. Kootanie dt., B.C	47	
	48	
Twin Cities mine, tp. Gillies, Ont.	43	
Umatilla claim, Cottonwood-Smith Ck., B.C. Uncle Sam claim, Cottonwood-Smith Ck., B.C.	43	
	47	
Union claim, Tulameen River, B.C Union claim, Illecillewaet dt., B.C.	45	
	43	
United claim, Kootanie Lake, B.C	46	
Wellington mine, W. Kootanie dt., B.C		
West Kootanie, district of, B.C.	40, 50	
White Heather claim, W. Kootanie dt., B.C	45	
Yosemite claim, W. Kootanie dt., B.C.	45	
Zeila claim, Nicola Valley, B.C.	47	
Slate, articles manufactured from:	+1	
Flooring tiles	107	
Ornamental slate panel.	107	
Roofing slate.	106	
School slates.	107	
Soap clay, used as a detergent	162	
Soapstone (steatite, compact talc), from:		
Bolton, tp. of, Brome co., Que	139	
Brome, tp. of, Brome co., Que	25	
Eagle Head, Gabarus Bay, N.S.	139	
Elzevir, tp. of, Hastings co., Ont	139	
Garthby, tp. of, Wolfe co., Que	139	
Potton, tp. of, Brome co., Que		
Sutton, tp. of, Brome co., Que	139	
Soapstone, bucket made of	139	
Sodalite		
Spathic iron ore,—see Siderite.	, , ,	
Specimens illustrating phenomenal geology	167	
Specular iron ore, from:		
Brome, tp. of, Brome co., Que	6.5	
Cape Gargantua, L. Superior, Ont	74	

Channel and in the control of the co	Pag	e
Specular iron ore, from:		
Chedabucto Bay, Guysborough co., N.S.	7	
Cook's Brook, Colchester co., N.S.	7	
East River, Pictou co., N.S	65, 7	3
Iron Mountain, Nicola River, B.C.	6	
Lac des Chats, Pontiac co., Que	65, 7	3
Leeds, tp. of, Megantic county, Que	7.	3
Mamainse, Lake Superior, Ont	6	
Nicola River, B.C	65, 7	1
North Elmsley, tp. of, Lanark co., Ont	7.	
Pinnacle Mtn., Missisquoi co., Que	65, 7	3
Pointe aux Mines, L. Superior, Ont	6	
Polson's Lake, Antigonish co., N.S	7	.)
St. Armand West, tp. of, Missisquoi co., Que	1	1
Salmon R., Guysborough co., N.S	11, 7	2
Shefford, tp. of, Shefford co., Que.	11, 7	.;
Sutton, tp. of, Brome co., Que	7	
Templeton, tp. of, Ottawa co., Que		
Whitefish River, dt. Algoma, Ont	7.	
Sperrylite		ŝ
Spessartite	18	
Sphalerite (zinc blende), from :		
Burrard Inlet, north of, B.C		-
Calumet, tp. of, Pontiac co., Que	55 50	Ó
Elzevir, tp. of, Hastings co., Ont	5.	
Garden River, dt. Algoma, Ont	59	
Kaministiquia R., dt. Thunder Bay, Ont		
Lake Superior, Ont,	50 6	0
McKay's Harbour, L. Superior, Ont.	59, 00	
McKellar's Island, L. Superior, Ont.	59	
Marlow, tp. of, Beauce co., Que		7
Niagara Falls, Welland co., Ont.		
Pointe aux Mines, L. Superior, Ont		
Red Deer River, Rocky Mtns, Alta	55, 58 60	
Rossport, L. Superior, Ont.		
St. Armand, tp. of, Missisquoi co., Que.	59	
Stellarton, Pictou co., N.S.	7	í
Sphene,—see Titanite.		
Spinel	15	
Staurolite	20	)
Steatite,—see Soapstone.		
Steatite, used as a pigment	13-	
Steeleite.	21	
Stellarite, Acadia Mines, Pictou co., N.S.	103	)
Stibnite (antimony glance), from:		
Echo Lake, dt. Algoma, Ont	57	-

	Page
Stibnite, from:	
Fraser River, nr. Foster's Bar, B.C.	
Lake George, Prince William, York co., N.B	
South Ham, Wolfe co., Que	
West Gore, Hants co., N.S.	
Stilbite.	
Stratigraphical collection of rocks.	
Strontianite	
Structural geology, specimens illustrating	
Sulphur, Native.	5
Sulphur, ore of,—see Pyrite.	171
Superphosphate.	151
Syenite, as a building stone,—from:	113
Barrow or Forsyth's Isd., R. St. Lawrence, Leeds co., Ont	
Grenville, tp. of, Argenteuil co., Que	
Jeune Lorette, St. Gabriel, Quebec co., Que	
Victoria, Vancouver Island, B.C	
Sylvanite, Moss, tp. of, Ont	
Systematic collection of minerals	3
Tale, from:	0"
Clarendon, tp. of, Frontenac co., Ont	
Elizabethtown, tp. of, Leeds co., Ont	
Grimsthorpe, tp. of, Hastings co., Ont.	
Potton, tp. of, Brome co., Que	25
Talc, compact,—see Soapstone.	
Tar, mineral,—see Mineral tar.	0
Tennantite	9
Terra-cotta ware	125
Tetrahedrite (grey copper), from:	9
Ascot, tp. of, Sherbrooke co., Que	50
Cherry Ck., Shuswap L., B.C.	
Fraser River, B.C.	9, 89
Thomsonite.	149
Thétis-hair stone	107
Tile stones, Bonaventure co., Que	
Tiles, flooring	11, 123
Titanite	06 99
Tourmaline	
Trap rock, as a building stone	
Tremolite	17, 51
Tripolite, earthy,—see Infusorial earth. Tufa, calcareous, from:	
	1.4
Caledon, Peel co., Ont.	14
Cayuga, Haldimand co., Ont	14

	D
Tufa, calcareous, from:	Page
Dundas, Wentworth co., Ont.	14
Tobique River, Victoria co., N.B.	14
Tungstite	11
Turgite	12
U.	
0.	
Ulexite	27
Uraconite	28
Uralite	17
Uraninite	27
Uranochre,—see Uraconite.	
V.	
V.	
Valentinite	11 57
Veinstone, banded—pyroxene and apatite	167
— — calcite and hornblende	167
- concretionary	
Vesuvianite	19
Vitreous copper ore,—see Chalcocite.	
Vitreous silver,—see Argentite.	
Vivianite	27
Volcanic breccia, as an ornamental stone	120
W.	
Wad	13
Wernerite	31, 32
Whetstones, made from mica-slate, from:	
Bolton, tp. of, Wolfe co., Que	161
Ham, tp. of, Wolfe co., Que	161
Kingsey, tp. of, Drummond co., Que	161
Madoc, tp. of, Hastings co., Ont	161
Massawippi L., Stanstead co., Que	161
Stanstead, tp. of, Stanstead co., Que	161
Whetstones, made from sandstone from: Arnprior, tp. McNab, Renfrew co., Ont	161
Nottawasaga, tp. of, Simcoe co., Ont.	161
Wilsonite.	
Witherite	14
Wollastonite	16

Y.

Yellow copper ore,—see Chalcopyrite.

Z.

Zinc blende,—see Sphalerite. Zircon....

Page

19



